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AUGUST 1, 1856.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*On Phlebitis of the Great Venous Trunks of the Neck subsequent to Labour*[a]. By ALFRED H. M'CLINTOCK, M.D., M.R.I.A., F.R.C.S.I., Licentiate of the King and Queen's College of Physicians in Ireland; Master of the Lying-in Hospital, Dublin, &c.

THE study of venous inflammation has, of late years, deeply engaged the attention of pathologists; and their discoveries, in this field of inquiry, have already thrown considerable light upon the nature and connexion of many obscure diseases. By these investigations both the practical surgeon and physician have been largely benefited; whilst the obstetrician has derived from them the greatest possible assistance, in unfolding the mysterious intricacies of puerperal fever, and explaining many of the otherwise inexplicable circumstances and features of this complex malady.

The two nearly related subjects—phlebitis and pyemia—both still require close investigation, and offer for solution many important problems. Every new fact, therefore, in their his-

[a] Read at a meeting of the Association of the King and Queen's College of Physicians in Ireland, May 7, 1856.

tory—every novel aspect under which either disease is seen—should be placed upon record, and so rendered available to aid in maturing our knowledge, and forming a basis for scientific generalization. Accordingly, I venture to bring forward the following clinical history, as it presents some features of extreme rarity and deep practical interest.

S. D., aged 22, was confined of her first child, a boy, on March 8th, after a labour of twenty-eight hours' duration. The consumption of time chiefly took place in the first stage, and in consequence of rigidity of the os uteri. For several days previously to the setting in of true labour, she suffered much from spurious pains; and very considerable hemorrhage occurred immediately on the expulsion of the after-birth. From the time of delivery her pulse was remarked to be quick, above 100; and this rate of frequency did not subsequently diminish. During the ensuing week she remained in a very unsatisfactory state. She had no rigor, nor anything like a distinct accession of fever or inflammation; but the pulse was constantly 110, or upwards; the belly was tumid; the uterus large, and tender on deep pressure; and she was troubled with painful tenesmus, and frequent dysenteric stools. Nevertheless, she was cheerful, and made no complaint of uneasiness in any particular situation. On her ninth day there was an apparent improvement in every respect, the pulse falling to 96, the belly becoming soft, and bowels being moved only five or six times in the twenty-four hours. On her tenth day she drew our attention to a fulness and tenderness immediately above the inner end of the right clavicle. There was a slight tumefaction in this situation, such as might be caused by a simple glandular enlargement. About this time she began to complain of a short, irritating, dry cough, which used to annoy her in the evening, and for which no satisfactory cause could be discovered. A few days later a similar swelling appeared in the corresponding situation on the left side of the neck. She did not seem to experience any serious uneasiness from these tumours, and beyond fomenting them with warm water, and painting with tincture of iodine, no decisive treatment was employed. Some days later—namely, on the 22nd March—her fifteenth day—I detected the existence of considerable œdema at the root of the neck, and across the upper and anterior part of the chest, but more so at the left side. The diarrhœa still continued, though with greatly diminished severity; her pulse was usually about 108; and the abdomen was flaccid, and entirely free from pain or fulness.

On the 26th March the œdematous swelling of her neck was decidedly less, though her face seemed somewhat puffy,

and the tenderness still remained. As she was now eighteen days confined, and seemed better, we yielded to her own urgent request for leave to be dressed, and to lie on the outside of the bed. Before she was dressed, however, she got an indistinct rigor, and had to be put back into bed.

From this time forward her symptoms underwent a striking change; and she progressively became worse and worse. There was a marked exacerbation of all the febrile symptoms; with hurried respiration, and occasional vomiting. In addition to these it was noticed, that the superficial veins, beneath the clavicles, and on the forepart of the chest, had manifestly become varicose.

From a careful review of her history, and an attentive consideration of her present symptoms, there seemed little room to doubt the existence of inflammation of some of the deep veins of the neck; and though not aware that such a diagnosis had ever been made, still we conceived that no other lesion could satisfactorily explain the peculiar features of her case.

On March 28th she is reported to have slept tolerably well; pulse 120; a deep flush on each cheek; the rest of the face is puffy, and of a chlorotic hue; the belly is soft and relaxed, and everywhere free from tenderness; the network of enlarged veins is still more apparent than heretofore, and includes some branches on the upper arm. The tongue is dry, and has a brown streak down the centre. Her breathing is somewhat oppressed; and she continues to have towards evening a short, teasing cough; this seems to be her chief source of discomfort; for, unless she moves her head, she experiences no pain in the neck. A slight rigor occurred to-day; in the evening it was remarked that her hearing was somewhat impaired. A rough bruit was detected with the first sound of the heart.

Her condition on the next day was, in every respect, more alarming; the pulse 128, and weak; tongue dry, brown, and crusted; slight subsultus of hands; frequent sickness of stomach; face much swollen; eyes prominent and pupils dilated; deafness increased towards evening; she complained of indistinctness of vision. Her mind continues clear and undisturbed.

On the 30th it was plain that her dissolution could not be far off. The respirations were frequent and laboured; the pulse scarcely countable, and very weak, though the heart was beating strongly; a thick brown crust on the tongue; pupils very much dilated. She was drowsy, and towards evening lapsed into a comatose state, which ended in death at 9 P. M.

Autopsy, twelve hours after death.—The enlarged veins in the neck and chest still very distinct, though changed in

colour. The abdomen, when laid open, presented no morbid appearance; the liver was healthy. The *uterus* was rather large for this period—twenty-two days—after delivery; its structure was remarkably soft and friable. Behind this organ, and deep in the pelvis, existed a small abscess. The mucous membrane of the large intestines seemed thickened, and was of a very dark colour, apparently from intense congestion. The *kidneys* were in an advanced stage of fatty degeneration. On dissecting back the integuments of the neck, and exposing the great venous trunks in this region, it was at once apparent that phlebitis, in its most marked form, had existed here. The deep jugulars, both subclavians, the upper part of each axillary, the right vena innominata, and superior portion of left, were the vessels engaged. In caliber they seemed enlarged, their coats were thickened, and internally they contained firm plugs of coagula and lymph, the latter being the more external, and adhering very closely to the wall of the vessel. These formations extended down to near the superior cava, the lining membrane of which was redder than natural. The pulmonary valves were intensely red, as was the interior of the pulmonary artery,—contrasting strongly with the aorta, which presented its natural colour. In the right auricular appendix was a small incipient abscess. The tricuspid and mitral valves were intensely injected, so as to present a bright scarlet colour. The aortic valves contained some calcareous matter, but otherwise presented no abnormal appearance. The lining membrane of the heart itself was pale, and showed no traces of inflammation[a].

Such is a very brief history of the symptoms and morbid appearances which this case presented. It will be remarked that, at an early period after parturition, the patient became affected with symptoms of low puerperal fever, the gastro-intestinal mucous membrane being the part on which the action of the poison seemed to be chiefly expended, though it is possible this diarrhœa may have had some connexion with the renal disease. A variety of circumstances concurred in this case to favour the development of puerperal fever. The kidneys were far advanced in fatty degeneration; she had spurious pains for a considerable time before the setting-in of true parturient action; her labour was tedious (twenty-seven hours), and was followed by severe hemorrhage. Another circumstance there was in her case, yet more influential than all these together, in predisposing to the invasion of puerperal fever,—she had been seduced,

[a] The preparation showing these morbid alterations was exhibited to the meeting, and is now in the Museum of the Lying-in Hospital.

and was labouring under intense mental depression, from the conjoint influence of bitter disappointment, and the cheerless prospect of a life of irretrievable disgrace and shame.

The attack of puerperal fever seemed partially to yield to treatment; there was some mitigation in the local and general symptoms. In the middle of the second week, however, the first indication of phlebitis of the neck showed itself. Now, in most cases of crural phlebitis, we find the course of events to be much the same as that just described. Thus, of sixty cases of puerperal phlegmasia dolens, collected by Dr. Mackenzie, the attack followed upon some form of puerperal fever, in thirty-three instances, and even this proportion I believe to be much under the mark.

The local effects of phlebitis were present, for some days, without being attended with any remarkable constitutional symptoms; and I freely confess that no suspicion crossed my mind, at this period, of the real nature of this swelling in the neck. To this localized tumefaction œdema succeeded; then came a rigor, and after it a sudden explosion of alarming symptoms, which too plainly revealed that the very fountain of life itself was poisoned. At a later period the dilated condition of the superficial veins on the front of the chest attracted our attention, and first suggested the possible existence of phlebitis of the deep veins of the neck. But little reflection was required for this conjecture to settle down into absolute conviction; in fact, for the establishment of this diagnosis, no symptom was now wanting: there were local swelling and tenderness, œdema, unequivocal signs of venous obstruction, and the constitutional disturbance ordinarily attendant upon phlebitis. Mark, also, the sequence in which the symptoms appeared:—First, puerperal fever, and apparently partial recovery; next, localized pain and tumefaction; then œdema; and, some days later, a rigor, with increased constitutional disturbance; and, lastly, varicose enlargement of the superficial veins.

The condition in which the deep jugular veins were found, after death, plainly showed that they had become wholly impervious, so that the return of blood from the head must have been entirely effected through the vertebral and superficial jugular veins. That great obstruction existed in the venous circulation, was manifest during the last few days of her life, and caused the aspect and expression of her face to bear a very close resemblance to those cases in which heart disease, and enlargement of the thyroid gland, co-exist. I regret exceedingly that an examination of the head could not be obtained.

The subclavian vein on each side was more or less ob-

structed by firm coagula and lymph; yet there was no œdema of either hand or either arm. It is, perhaps, impossible to say, with certainty, in what particular spot the phlebitis began, or in what direction it spread; that is, whether in a direction towards or from the heart. My own opinion is, that it extended along the veins *contrary* to the course of the circulation, as is generally observed in crural phlebitis. This opinion is founded on observation of the situation of the tumour during life, and of the morbid appearances in the veins,—the apparently more recent inflammatory deposits being at the remote point from the heart.

The existence of fatty degeneration of the kidneys is a feature in this case that should not be overlooked, particularly at the present time, when so much attention is being directed to the influence which this organic lesion exercises over the progress and results of intercurrent diseases. The urine was not at any time tested, as, owing to the constant presence of diarrhœa, it was not procured free from the admixture of fæcal matter.

I believe it will not be an exaggeration to assert, that the case just detailed, in so far as relates to the phlebitis of the venæ innominatæ, is almost unique in medical literature. I know of but one similar instance; it was exhibited at the Pathological Society, in November, 1851, by Dr. Mayne, and the account of it is published in the thirteenth volume of the Dublin Quarterly Journal, N. S.

From its interest and great practical importance, I feel that no apology is necessary for quoting Dr. Mayne's account of this case, as submitted to the Pathological Society:—"The case was that of a man aged 29, who had been in hospital in February last, labouring under symptoms of incipient phthisis. After a few weeks he left the hospital, and returned to his business; he was very soon, however, seized with a severe bowel complaint, supposed by himself to be dysentery, and which persisted up to last October, when he again placed himself under Dr. Mayne's care, in consequence of the sudden supervention of pain and swelling in the *right* upper extremity; the pain, commencing behind the clavicle and in the corresponding shoulder, was soon followed by œdematous tumefaction of the entire limb, which was hot, painful to the touch, and pitted imperfectly upon pressure. The deep-seated veins could be traced, hard and cord-like, under the integuments, and the superficial veins about the shoulder, the axilla, and the arm, were largely dilated, and by their blue colour and varicose appearance at once attracted the attention of the observer. For the few days during which the

man survived, the bowel irritation seemed to supersede the chest symptoms. The stools, which were as many as twelve to twenty in the twenty-four hours, were of an ochrey character, and insupportably offensive.

"At the post-mortem examination both lungs were found filled with tubercles, but there was no cavity of any extent in either. All the veins of the right upper extremity were filled with firm coagula, which adhered to the lining membrane, and retained a considerable portion of the colouring matter of the blood. These coagula, when removed from the veins, resembled portions of coral. The coats of the veins were thickened and opaque. These diseased appearances extended as far as the junction of the two venæ innominatæ; the right vena innominata was quite impervious, while the left, the superior cava, and the azygos, were free from any trace of inflammation. The examination of the small intestines was accidentally omitted, but the large intestines exhibited the appearances usually observed in the advanced stage of chronic dysentery; the mucous membrane was covered with ulcers, many of which in the rectum and sigmoid flexure of colon were circular, with depressed centres and indurated margins."

Whilst this case resembles, in some respects, the one I have above related, still, between the two there are several points of difference, but which it is needless here to enter upon.

In neither of them was the phlebitis a primary, idiopathic disease. In Dr. Mayne's case it was preceded by phthisis and chronic dysentery; in my case, by puerperal fever and kidney disease.

Respecting the etiology of phlebitis our knowledge is as yet very imperfect. That it may arise from the wound or injury of a vein, is clearly established; though atmospheric condition, and the health of the individual at the time, exercise a powerful influence in modifying the results of this injury. Secondly, phlebitis may result from the immediate contact of purulent or septic matter with the endangium of a vein. That this is not by any means a necessary consequence, however, is abundantly proved by the experiments of Gaspard, Cruveilhier, and Mr. Henry Lee; on the contrary, the blood may be contaminated, and pyemia induced, without any inflammation of the venous canals through which the poison gained an entrance into the circulation. Thirdly, there is good reason to suppose that phlebitis, under certain circumstances, may originate in an extension of inflammation from surrounding tissues. Veins imbedded in bone would appear more disposed than

others thus to become implicated in the inflammation of contiguous structures.

Lastly, we sometimes see inflammation affecting venous trunks, independently of any of the preceding causes, and where its production may, in a limited sense, be considered spontaneous; whether or how far it is truly idiopathic, is another and more difficult question to determine. I am strongly inclined to the opinion that phlebitis, thus arising, is not essentially idiopathic; that it is only a consequence, a local manifestation, of toxœmia, or vitiated blood. The circumstances under which this so-called spontaneous form of phlebitis presents itself, lend considerable support to the above view. It is never seen occurring, for instance, in the midst of sound health, but attends or follows upon various diseases whose decided tendency is to alter and deteriorate the blood. In this category we have typhoid, adynamic, and puerperal fevers; phthisical, gouty, and rheumatic states of the constitution; chronic dysentery and chlorosis. Dr. Robert Lee maintains that phlegmasia dolens (or crural phlebitis) is always an extension of inflammation from the venous textures of the uterus. This, be it remembered, is the opinion of one of the highest authorities upon this subject. In it we see a recognition of the fact, of crural phlebitis being *preceded* by a disease eminently favouring the production of blood poisoning. Whether this extension of morbid action does or does not take place, we need not now stop to argue, as the general question is thereby affected in but a small degree.

Dr. Mackenzie's researches on the nature and pathology of phlegmasia dolens have, I think, a close relation to the point now under consideration. He does not deny that phlebitis is always present in the affected limb. This, indeed, is a fact as well established as any other in pathology; but what he contends for is, that this inflammation of the veins is secondary to, or arises out of, a vitiation of the circulating fluid. In confirmation of this he adduces the results of many direct experiments, and cites a large number of cases of phlegmasia dolens, from various authors, all concurring to give strong support to his pathological views.

I am not going to pursue this inquiry further at present, as it would open up too wide a field for research, and one, moreover, which, to a certain degree, has already been explored by Dr. Mackenzie. In the case already related, and which has led to these remarks, there can be no possible doubt that when the phlebitis of the neck appeared, a state of pyemia, or at least

of blood-poisoning, had for some days existed. Her symptoms then, and previously, together with the post-mortem appearances, concur in supporting this view.

In Dr. Mayne's patient the health was broken down and seriously impaired by chronic dysentery and phthisis, for a considerable time previously to the occurrence of the phlebitis; so that we see, in both these remarkable instances, causes were in operation quite adequate to produce an altered, vitiated state of the blood.

It has been stated, in the course of the clinical history of this interesting case, that the local effects of phlebitis were present for some days, without being attended with any remarkable or peculiar constitutional symptoms. This leads me to observe here, that of *pure phlebitis we have, I believe, in point of fact, no pathognomonic symptoms beyond the local ones; the symptoms considered to be such belonging rather to the state of pyemia.* Hence, in all cases where a vein or veins, beyond the reach of tactile examination, are inflamed, as, for example, in a case of uterine phlebitis, we cannot know of a certainty that the venous tissue is the one particularly engaged, unless the characteristic symptoms of pyemia show themselves. To this conclusion, at least, I am led by my own experience. I may, perhaps, be in error on the point, and therefore would not wish to speak dogmatically. At all events it is just one of those questions which can only be decided by the collective experience of many observers. It, therefore, with the other question—"Does phlebitis ever occur as a purely idiopathic disease?"—I would respectfully throw out, as subjects on which it would be of advantage to elicit the opinions of others.

Art. II.—*On Abscess of Bone.* By John Hamilton, Surgeon to the Richmond Hospital.

Suppuration connected with a bone is usually presented to us under three forms:—

First, between the surface of the bone and the periosteum, by far the most common. When it occurs at some part of a long bone, as a result of ostcitis and periostitis, if the abscess is left to itself, after having caused much suffering, it will break, and, generally after some exfoliation of bone, slowly heal, with a white, shining cicatrix adherent to the bone. The following case exhibits this form, and the appropriate treatment.

Peter Macdonnel, aged 29, a porter, was admitted into the Richmond Hospital, complaining of pain and lameness of the right leg. The pain is worse at night, coming on severely at

5 o'clock in the evening and lasting till 5 the next morning. The right tibia is seen to be considerably swollen, the swelling most prominent about its centre, extending to the tubercle above, and to within a hand's-breadth of the ankle below. The swelling is hard, except at its centre, where it is soft, fluctuating, and tender. The integuments about this situation are of a yellowish red colour, and œdematous. Besides this soft and evidently suppurated swelling, the remaining tumefaction of the tibia can be felt to depend on a general fusiform enlargement of the whole substance of the bone, which is three times the size of the other tibia. Skin hot; sweats at night; pulse 92; headach.

Fifteen years ago he was seized with pain in the leg and ankle-joint; the leg then swelled, became red and painful, and continued so for eight weeks. It was lanced near the ankle-joint, and a red fluid let out, which gave ease; but it subsequently broke out in several places along the shin, where there are at present puckered cicatrices. When first they broke open, they discharged red fluid, afterwards yellow matter, but never any pieces of bone. Two days after admission, I made an opening down through the periosteum to the bone, which was soft on the surface, so that the point of the knife stuck readily into it. Pus, mixed with blood, was discharged.

Three days after this, great ease having followed the incision, and all fever subsided, he was ordered three grains of blue-pill thrice daily, which was continued for three weeks, when he was discharged, well; the bone considerably reduced in size, and a small, granulating spot at the seat of the incision.

Secondly, diffuse suppuration in bone is a most formidable affection: the bone itself is often destroyed, the periosteum stripped from the surface of the bone, thickened, its inner surface of a deep red from the intense inflammation, and profuse suppuration between it and the bone; the larger cancellæ and medullary canal of the bone full of pus; there are great pain and swelling of the limb, which is usually œdematous, of a pale pink colour, exquisitely tender. Fluctuation of matter soon becomes evident, and requires free incisions. The matter makes its way from the interior of the bone, through small openings which are formed by the rapid absorption of the bony structure, just as we observe in abscess at the root of a tooth, the matter working its way out by a small hole in the alveolar process at the point of the socket, forming the common gumboil. At other times the matter unhappily makes an entrance into a joint, which then becomes intensely inflamed,

necessitating the loss of the limb, or causing a stiff and anchylosed joint. When many long bones are affected at the same time, as the femur and tibia, the termination is usually fatal; when the result of phlebitis, nearly inevitably so.

It might be supposed that, when a bone was stripped of periosteum on the outside, and full of pus within, its death and separation, with the loss of the limb, would be certain. Such is not always the case. After the incisions by which the matter was let out have continued open for months, perhaps, and discharging more or less matter, with every now and then a small exfoliation of bone, they close, and the patient recovers, with a stiff, emaciated limb, the muscles and soft parts matted together, and the joints stiff and anchylosed. In other cases, large portions of the shafts become necrosed, and go through the usual tedious course of separation.

It is, happily, not a very common affection; it is most frequently observed in the young, and is, as the above account will show, always a very serious disease. The following case, which I saw in consultation with Mr. Newland, of Camden-street, is an example of the more favourable termination of diffuse suppuration in bone, and acute purulent periostitis:—

A florid-complexioned boy, aged 8, of delicate parents, (his mother having just recovered from lumbar abscess, and subsequently had her leg removed by me for ulcerated cartilages of the knee-joint), has the whole of the left arm greatly swollen, the fore-arm and hand œdematous, the swelling pale, except at the upper part, near the axilla, and about the elbow. There is no distinct fluctuation, the swelling being tense, and very tender, and evidently of the periosteum and bone. He was free from complaint till a week since, when he suffered from pain in the arm, but no swelling for two days. The course of the disease has been most rapid—high fever, delirium, and the pain very great; the least motion of the arm insupportable. Pulse, 124; tongue, white, red tip and edges.

Two days after, I chose a part at the external side of the centre of the bone, and cut down to it, dilating the opening with the director and bistoury. A little very thick matter flowed out, and the surface of the bone could be felt quite bare. It became evident that the scapula was also affected, and subsequently many points of suppuration over it and the humerus were opened, either by Mr. Newland or myself. These continued to discharge profusely for a long time, the constitutional disturbance remaining very high—emaciation, night-sweats, and well-marked hectic fever; but, after many months, though the opening did not close, he recovered his health, but with

complete anchylosis of the shoulder and elbow-joints. Some months after, Mr. Newland requested me to see the case again. I found, protruding from the upper opening, a piece of dead bone; I seized this with a forceps, and drew out a portion of the shaft of the humerus, several inches long. The openings all closed shortly after, and the recovery was rapid and complete.

Thirdly, circumscribed abscess in bone, which may be either acute or chronic. The acute, circumscribed abscess begins with severe pain in the bone and periosteum, and signs of local inflammation, swelling, redness, and exquisite tenderness. The matter makes its way, by absorption, through what Mr. Stanley calls a "channel in the bone," to the surface between the bone and periosteum. When this matter is let out, immediate ease follows, and a probe can be passed through a small, rugged opening of the bone, into a cavity, the interior of which is very sensitive. In a few weeks the patient gets well, the discharge lessening as the cavity fills up, and often without any exfoliation of bone, though the surface of the bone, for some distance round the opening, at first feels hard, rugged, and irregular, like the surface of a brick.

A young woman came into the Richmond Hospital on account of a dreadful pain in the left leg; the centre of which, over the tibia, was swollen, red, purplish, very tender, and fluctuation manifest; the rest of the leg and foot swollen, and œdematous. High fever, and very loaded white and yellow tongue. A free incision let out a quantity of thick, yellow matter, with great relief. The surface of the bone, stripped of periosteum, was rough and hard, the matter having been situated between it and the periosteum. A rugged opening in the tibia led down into a cavity: when the point of the probe touched the bottom or sides, it gave exquisite pain. She left the hospital in a fortnight, just well.

After the abscess has been opened, proper remedies for the osteitis should be employed.

In a case where the aperture in the bone, through which the abscess had made its way out, was too small, I found it necessary to enlarge it; the mere opening of the abscess on the surface not having proved, as it generally does, sufficient.

Abscess in the Tibia from Syphilis.—Maria Vesey, aged 22, was admitted into the hospital, December 15, 1850. She took a child to nurse three months after her own confinement; the child had syphilis, having been covered with spots, with a sore mouth and weak voice. Her right nipple became ulcerated, followed in a few weeks by an eruption and soreness about the

private parts, and dreadful pain in the skin of the right leg and of the right upper jaw.

Besides other symptoms, the state of the tibia, on admission, was as follows:—There was a dull red tumour on the front of the right tibia, about its middle, which fluctuated, and was very tender, and evidently connected with the bone, the tibia being enlarged in its whole circumference at the affected part, the swelling most prominent at the centre, from which it gradually subsided.

A free incision was made along the tumour dividing the periosteum down to the bone. The surface of the bone felt soft and rough; a good deal of matter flowed from beneath the periosteum; the point of the knife sunk into a soft depression, and on examination there appeared a circular hole, through which a probe passed into the cavity of an abscess in the centre of the bone. The edges of the opening felt hard and rough, and the curved probe could be passed up and down for near an inch, showing the hollow of the abscess to be extensive. Since the abscess of the tibia was opened, she feels easier, but has occasionally a bad night from pain. The opening discharges a thick reddish-brown matter. She is taking corrosive sublimate and tincture of bark. She soon after began again to suffer from severe pain, and as I thought the opening was too small, I made a crucial incision through the soft parts, so as to expose the bone, and with a gouge enlarged the opening sufficiently to admit the little finger. She had no more pain, and, a fortnight after, left the hospital, with a small superficial sore, the cavity of the abscess having filled up with granulations.

The *chronic* circumscribed abscess in a bone is a very interesting disease to the surgeon, often very difficult of diagnosis, but, when recognised, admitting of the most striking and complete relief by operative proceeding. It was first described by Sir Benjamin Brodie. The first case was not recognised, and the wearing-out pain in the leg led to amputation. When a section of the tibia was made, a circumscribed abscess was found in the bone. It all at once struck Sir Benjamin, that, if the matter had been let out, the limb might have been saved. In the next case, accordingly, the seat of the pain in the tibia, where the matter was supposed to be, was trephined, and matter let out, with complete and permanent relief to the patient. That period of the operation, when the cavity was opened, seemed to have been acutely painful.

Mr. Stanley has given several cases of this form of disease, and we have had many in the Richmond Hospital, under the

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care of Mr. Hutton, Dr. M'Donnell, and myself. The abscess may be found at any part of a bone, but is oftenest met with at the extremities of the long bones, in the cancellated structure, and particularly of the tibia—not usually of large size, though very large ones do occasionally present themselves, as the remarkable case in Mr. Stanley's work, the patient having had a cork in the opening, which enabled him to empty the enormous cavity when he liked. I have had several opportunities of examining specimens of chronic abscess of bone, as we possess both plates and preparations of it in the Museum of the Richmond Hospital; and as I believe such not to be common, there being, for instance, only one example in the Hunterian Museum, I may make a few observations on its general pathological characters.

The cavity of the abscess may be round, but is more commonly oval or oblong. It is lined by a very vascular membrane, having the soft villous appearance of mucous membrane, and is easily separable from the bone.

The periosteum and areolar tissue over the seat of the abscess are thickened and matted together, but not always; the cancellated structure of the bone around the margin of the cavity is usually condensed, and quite close to the cavity, the cells are obliterated, and the bone of ivory hardness, so that in drilling, as the instrument proceeds, the greatest resistance is felt just before it enters the sac of the abscess.

The fact of the abscess most frequently occurring at the articular ends of bones should not be forgotten, as, in more than one case, the matter has worked its way into the joint, a most serious, or even fatal occurrence.

In one preparation there is an oblong cavity in the upper end of the tibia, occupying more than one-fourth of the bone. It is irregular, the wide end above, the lower end tapering to near a point; the walls well defined, except in front, where about two-thirds are gone, opening the cavity to the soft parts. The upper wide part of the cavity is an inch from the knee-joint; the joint is healthy, as also the portion of bone between it and the cavity of the abscess, except that it is a little paler than natural, and the cancellæ smaller and closer,—a state of bone which exists all round the edge of the abscess. At the lower end is another abscess, about an inch from the ankle-joint; it had discharged itself by a long, narrow, oblique channel, at the back of the tibia. The front wall of this abscess was thick, and rugged, and prominent. Both are lined by a small, green-coloured membrane, soft, like mucous membrane. The lower one contained a piece of dead bone, the size of a nut,—a fact

which leads me to think that in this, as in some other cases I have seen, these abscesses are connected with a partial necrosis; and it shows the necessity of examining the cavity carefully, for merely evacuating the matter by your opening is not enough; until the bit of bone is got out, it cannot be expected to close.

In another preparation the whole of the lower end of the tibia is enlarged, and in the centre of the enlargement is an abscess the size of a hen's egg, but of a narrower oval. It is lined by a vascular membrane, with some lymphy exudation on the surface; the cancellated structure of the bone round the cavity is paler, and more condensed. It is distant from the ankle-joint about an inch, and the bone between the abscess and the joint, at one point, is dead, as if there was an attempt, by the death of a portion of the bony wall of the abscess, to give exit to the matter into the neighbouring joint. The bulging of the bone before and behind was very gradual. The woodcut shows very clearly the lining membrane of the abscess,

with some lymphy effusion on its surface. The whitened portion of the bone exhibits a necrosis, extending from the lower part of the abscess to the articular cavity, by means of which

the contents of the abscess, as above remarked, would finally have escaped into the ankle-joint.

The symptoms of chronic circumscribed abscess in the bone are pretty much what we observe in simple osteitis, viz., deep-seated, wearing-out pain in a bone, usually at its articular extremity, general enlargement of the part of the bone affected, with thickening of the soft structures, and periosteal tenderness on pressure. Except in very acute cases, there is no redness of the integument. Now, as these symptoms are common both to simple osteitis and to circumscribed abscess of bone, how can we distinguish one from the other? The degree of suffering may assist, as the pain of the abscess is of a more distressing character; but I believe most practical surgeons are guided in their diagnosis by the obstinate resistance to those means which are found to relieve simple osteitis. Leeches, blisters, and mercury, give only temporary ease. They are scarcely left off when the pain recurs as bad, or worse, than before, and the patient implores earnestly for relief; they are ready to submit to anything you propose, the pain is so dreadful.

Randal Bird, aged 15, a messenger, sallow-complexioned, but not otherwise unhealthy-looking, admitted October, 1849. He complains of great pain in the right tibia, particularly at night, when it keeps him awake; it is referred to the surface rather than the deep part of the bone, and is of a darting character. The upper third of the tibia is considerably enlarged, the enlargement being a general diffused tumefaction of the whole substance of the bone. The integument is not discoloured, nor thickened, nor œdematous; but the front and sides of the upper part of the tibia are very tender to pressure. Tongue furred; pulse 100, weak; bad appetite; bowels regular; sweats at night, but has had no rigors.

Four years ago he got a pain in the right knee, just above the tubercle of the tibia; the leg swelled, and gathered, and broke, in a month afterwards. Before it broke the pain was dreadful, but ease followed; no exfoliation of bone took place. It was six months in healing; afterwards he was still never free from pain, but had always a sting in it, and sometimes suffered very severely. The first few days after admission the pain became unusually great, the tongue very loaded, and the nights sleepless, but the integuments were not reddened.

The long continuance and severity of the local symptoms led me to believe that the upper part of the tibia was the seat of abscess; but as neither blistering nor mercury had been tried, I thought it best to resort to them before operative measures. Two grains of gray powder were given three times a day, and

a blister was applied; it rose very well, and at the end of three days he was nearly free from pain; but a week after, the pain returned with great violence, and the resident pupil, Mr. Johnson, gave him a full opiate, which, failing to afford relief, he repeated. The next day I found him crying from pain, which he referred to the upper part of the tibia, the articular end of the bone, quite into the knee. There was some effusion of fluid in the tissues under the ligamentum patellæ, but none into the joint itself. There was great tenderness over the painful part of the tibia. As he had not taken mercury enough to affect his mouth I continued it, and ordered another blister. On the 1st of November his mouth was made sore, and all inward pain ceased. He continued well till the 13th, when the pain recurred with great violence. I could feel, about two inches below the upper end of the tibia, a round and rather depressed spot, exquisitely tender on pressure. I made a free incision down to the bone in this situation, but there was no matter between the bone and periosteum. I, therefore, applied the drill, which, at the depth of about half an inch, penetrated a cavity, and a quantity of serous fluid and some large beads of thick pus flowed out. A probe bent at an obtuse angle entered a moderate-sized cavity. The operation was performed under the influence of chloroform, and was followed by complete relief. I have seen him since for other affections, and, with the exception of an occasional dull pain in the bone, at long intervals, he has not suffered at all.

The course we have to follow in these cases is clear: nothing but letting out the matter will do the least good. This has been accomplished in various ways. Sir B. Brodie used a small trephine with success; Mr. Weiss has a drill for the purpose; my friend and colleague, Mr. Hutton, has been in the habit of making the opening by means of the ordinary Archimedean drill employed by mechanics. It answers remarkably well, it works very quick, and pierces the hardest bone, and, as the opening is not large, if the first perforation does not hit the cavity of the abscess, a second can be quickly made in a more likely direction. The smallness of the opening may fairly be objected to; it may not always be sufficient to give the matter free exit; if this is found to be so, a small trephine will enlarge the opening, or, when the bone is not very hard, a small gouge or chisel will answer very well. In three cases, where I have opened circumscribed abscess in the bone by the Archimedean drill, I had no necessity to widen the opening afterwards, as it effected the object of letting out the matter perfectly well. Every now and then the opening should be exa-

mined with a probe or director, to see that it is free. It is wonderful what ease follows this opening: the great pain goes away immediately, and the rapidity with which the swelling of the bone disappears is often remarkable, as in the following case.

Anne Creely, aged 46, not sickly-looking, was admitted November 6, 1852. She complains of constant, deep-seated pain, in the upper fifth of the right tibia, frequently darting towards the hip and down to the ankle. The pain becomes aggravated at night, preventing sleep; it is then generally hot and throbbing. She can perform all the motions of the knee-joint perfectly, but motion aggravates the pain.

The upper part of the right tibia, at the seat of the pain, about two inches below the tubercle, is considerably enlarged. The swelling is diffused, but the rising of this part of the bone is well marked. It embraces the entire substance of the bone, which is convex, very tender on pressure, and the integuments over it reddened. The remainder of the bone is of its natural size. The right tibia, at the affected part, measures two and a half inches more than the other. In the left leg the lower part of the tibia is also enlarged and painful, but not to any considerable degree.

She never had syphilis.

Twenty years ago, without any apparent cause, she became affected with dull, aching pain in the bone, abscess, and exfoliation. The enlargement of the bone never entirely subsided. Eight years ago the left tibia, near the ankle, became affected in the same way. Four years since she again suffered from great pain and tenderness, in the bone and periosteum of the right tibia; she was leeched, blistered, and salivated, and an incision made down to the bone, after which she got quite well, and continued so till two months ago, when the pain returned in the right leg, preventing her sleeping at night, or walking. She has had frequent rigors since, has lost all appetite, and is very feverish. Within the last month she has noticed the upper part of the bone to be much increased in size; leeching, blistering, and salivation have failed to give relief.

December 8th. For the last fortnight she has not slept with ease a single night; the pain is very severe, hot, and throbbing; pressure is very painful. Pulse, 90. The integuments over the swollen part are red.

From the obstinate resistance of the pain to those remedies which usually succeed in curing osteitis and periostitis, I conceived it to depend on an abscess in the centre of the affected

part of the bone, and resolved to perforate it. An incision, to the extent of three inches, was made on the most prominent part of the diseased bone; the periosteum was rather more adherent than usual, and the surface of the bone rough, and very hard. The drill was applied, and worked well, but evidently through a dense material; the hardness went on increasing, till at length, from the sudden cessation of resistance, a cavity was known to be entered, after the drill had penetrated about three-quarters of an inch. A bloody fluid flowed freely out, with some globules of yellow pus.

9th. She slept badly last night, being in great pain till morning; but the character of the pain is altered—no longer the gnawing, deep-seated pain in the bone itself that she felt previous to the operation; it is more superficial.

10th. Slept well last night; still, some pain and soreness of the bone, but nothing approaching the agony she suffered for the last three weeks.

On the 14th, six days after the operation, she was very much improved; the pain quite gone; the transverse width of the front of the tibia is *one inch less.*

24th. Sixteen days after the operation the report is—"As far as the bone goes, she is well; *it has now regained its natural size.* She is quite healthy, and has put up flesh, a small granulating sore alone marking the site of the operation. On the twenty-sixth day she went out of hospital perfectly well; I have frequently seen her since, and she has had no relapse.

In this case, after the cavity in the tibia had been opened by the drill, a curved probe could be passed freely into it and moved easily about; it seemed to be oblong, and near three inches in length. The chief portion of the fluid was serous, with a few globules of yellow pus; it was the same in Randal Bird's case,—some globules of pus, in a large quantity of bloody serum,—the discoloration by blood arising probably from the result of the division of the structures, or the breaking of the vessels of the pulpy membrane lining the sac, on the fluid being suddenly removed, and its supporting pressure withdrawn. Dr. Robert M'Donnell told me, that, in a case operated on by his father also, it was not pus, but thin bloody fluid, that came away. This is an important fact to be borne in mind, because otherwise, when no matter comes, it might be supposed that the cavity had not been discovered. Two other circumstances would, however, tend to correct this,—the sensation of the operator when he enters the cavity, the resistance suddenly ceasing; and next, the still more conclusive one, of a curved probe readily passing up and down in the hollow space.

The very rapid subsidence of the swelling of the tibia after the operation, in this case, as I have already said, was remarkable; the transverse diameter, on the front of the tibia, having lessened by one inch in two days afterwards; the cavity appearing to have fallen in, as well as filled up with granulations; and sixteen days after, the bone was of its natural size. This is very unusual. In Randal Bird's case the bone never got near the natural dimensions.

The operation of drilling an opening through the bone into the abscess is not only demanded to relieve the distressing pain of the disease, and effectuate a speedy cure by giving exit to the matter, but also to anticipate the very dangerous termination of an opening into the joint, and the loss of the limb. In some cases the thin wall of bone between the abscess and the next articulation has not been more than three or four lines thick. In Mr. Stanley's work there is the delineation of an abscess at the lower end of the femur, in a child, which had opened into the knee, and amputation became necessary.

I may add the following case, which enforces the importance of the early opening of these abscesses, by showing the dangerous consequences of delay.

A young man was admitted with the most intense inflammation of the left knee, which was greatly swollen, and dreadfully painful. There was every reason to believe that the joint was full of pus, and, from the acute suffering on the least motion, and the painful startings of the limb, that the cartilages were ulcerated. He had long suffered from a dull pain in the tibia, just below the joint, with swelling, but the knee itself was not swollen or painful till some short time before admission, when it became so, suddenly, with violent pain and high fever. The limb was amputated, and I found, as I had anticipated, the joint full of pus, the synovial membrane intensely inflamed, and the cartilages extensively ulcerated. The origin of all this mischief was discovered to be an abscess in the head of the tibia, large and irregular, which communicated by an irregular opening with the joint. The preparation is in the Richmond Hospital Museum.

Art. III.—*On the Coexistence of Functional and Organic Disease of the Kidney; and on the Use of Mercury in some cases of Bright's Disease*[a]. By Henry Kennedy, A.B., M.B., T.C.D., Physician Extraordinary to Sir Patrick Dun's Hospital.

To two points in the practice of medicine I would wish shortly to direct the attention of the Obstetrical Society. Of the diseases which have of late years received attention, none has had more than that known as Bright's disease; and yet, I fear it must be admitted that our knowledge of the subject has not been at all in proportion to the labour bestowed on it. This, however, so far from preventing us pursuing it further, is only an additional reason for more continued exertion and attention. There would appear to be nothing in the nature of the disease itself—I am speaking now of the character of the deposit in the kidney—which should render it, at least in the earlier stages, impossible to stay its further progress, and so to prolong life indefinitely. Many cases, I am aware, are on record where life has been prolonged for years, at a time when Bright's disease existed. But it is one thing to be aware of a fact of this kind, and quite another to know that the prolongation of life is due to well-directed treatment. The late Dr. Graves was, I believe, the first to announce the fact, that albuminous urine was not necessarily connected with organic disease of the kidney, and this has been amply verified since. In my own experience I have now seen several examples; the great majority, however, being cases where anasarca and albuminous urine followed on scarlatina. It is well worthy of notice, too, that in this class of cases the urine may present the most opposite states. Thus, in some of the cases I have witnessed, the secretion literally jellied on the application of heat, whilst in others not a trace of albumen was present. Yet both cases appeared under apparently similar circumstances, and both states were recovered from. These facts appear to me curious points for investigation, and worthy of being kept in mind. But albumen may almost disappear also, where there has been no preceding scarlatina. The following case was a striking example of this kind:—

Case I.—Some time back a girl, twenty years of age, came under my care in Sir Patrick Dun's Hospital. She had two distinct attacks of acute rheumatism within the six previous

[a] Read before the Obstetrical Society, May 24, 1856.

years, and in one or the other—I could not make out which —it appeared that the heart had been attacked, though but slightly; she had now a weak but persistent bruit at the apex of the organ. It was not, however, for any complaint of the heart she now came into hospital, but because her legs had begun to swell lately: the swelling reached nearly to the knees, was considerable, and pitted on pressure. The girl had a pale, unhealthy look, and menstruation was irregular. The urine, by the usual tests, showed a large amount of albumen. Under treatment, of which I will speak again, I must say, I was much surprised to find, at the end of eight days, that at least two-thirds of the albumen had disappeared. It is enough to say of this case, that she left the hospital, after a few weeks, very much improved in health, but the urine still gave evidence of the presence of a small amount of albumen. I have seen this girl since, and she continues as well as when she left hospital, nor does the heart affection seem to have progressed.

This case was a good example of a second form under which albumen in the urine presents itself to our notice. The next two instances are examples of a still more common form of the affection, that is, where the albumen is permanently present; nor would I take up space by detailing them, had they not each connected with them a point which I believe to be of some consequence.

Case II.—Mr. ——, connected with the public press of this city, applied to me, some years back, for advice. He was labouring under one of the forms of dyspepsia. He was twenty-nine years of age, of a well-marked, sanguineous temperament, sober, and had been suffering for more than two years. One of the symptoms he mentioned was vomiting. It took place, however, at long intervals, was not preceded by sickness, and occurred without any appreciable cause. It is enough to state here that, finding no reason to suspect actual disease in the stomach, I was induced to examine the urine, and found it to contain albumen, in what might be described as the second degree. Under general treatment the stomach symptoms became somewhat better, and so he remained for about one year, when he applied to me again, labouring now under ascites and anasarca. In the interim, his stomach had remained comparatively well. On testing the urine, it still gave unmistakable evidence of the presence of albumen. After trying a variety of treatment, he at last got rid of the dropsy, and believed himself to be quite restored in his health. He continued now wonderfully well for more than a year and a half, when precisely the same cir-

cumstances again took place. Dropsy again showed itself, and was again cured; and he continued well till the last visitation of cholera in this city, when he was carried off by this disease.

Case III.—A woman, twenty-eight years of age, was handed over to my care lately in Sir Patrick Dun's Hospital, by Dr. Aquilla Smith. She had extensive dropsy, in connexion with a very large amount of albumen in the urine. On the fourth day of my seeing her, vomiting, which had only been occasional before, became very urgent, attended with swelling of the face, dilated pupils, severe pain in the head, and, though aware of what was coming, I was unable to prevent it. Violent convulsions ensued, alternating with a comatose state. This condition continued, in spite of as active and varied treatment as the case seemed to admit of. At last treatment was adopted, which it is the main object of these remarks to bring under notice; and then, and only then, the convulsive fits ceased, and the patient is now—more than six weeks having elapsed—free from any immediate danger, though not at all free from the swellings, and of course not cured of the disease[a].

Thus briefly have I given a sketch of three cases in which albumen was present in the urine, in more or less quantity. These cases are quite sufficient, however, to enable me to direct attention to the two points for which I ventured to bring them forward; the one being a proper classification of those cases in which albumen is found; and the second, the question of treatment.

All forms of the disease may, I believe, be referred to the three following heads:—

1. Those in which albumen is present, but ultimately disappears entirely; of which the dropsy of scarlatina may be adduced as affording the best example.

2. Those in which albumen is persistently present, in one uniform quantity.

3. Those cases in which albumen disappears in part, under treatment, whilst a definite quantity still remains.

Of the two first it is not my intention to speak, for they must be quite familiar to every one. But I doubt whether the third form be yet sufficiently recognised. Of its existence there can, I think, be no doubt, whilst a recognition of the fact seems to me to explain some points which otherwise are obscure. Thus we have had particular medicines recommended for Bright's disease of the kidney; and, within the last few

[a] In connexion with convulsions, pregnancy, and albuminous urine, I may refer to an able essay by Dr. Churchill, published in the May Number of this Journal, for 1852.

years, Drs. Lees and Corrigan have, in our own city, written specially on the respective advantages to be derived from the use of the salts of iron, and of the hydriodate of potash. I have seen too many examples now to doubt the value of both these medicines. But then—and this is the point to which I beg to call particular attention—these medicines are not, as it appears to me, to be so much considered special means, but merely as constituting a part of that line of treatment which is capable of benefiting the form of Bright's disease, which is now more immediately under consideration. I rest this statement on the fact that I have found any means—medicinal or otherwise,—which improves the general health, will also benefit the disease of the kidney; and so it is that the mineral acids, sarsaparilla, cod-liver oil, &c., will each in turn be found as useful as any other means which have been devised. Selections are of course to be made; but these are to be based on the rules which guide us in chronic affections in general, and not on disease of the kidney in particular. The result, in fact, of all the observation I have been able to make on the subject is this,—that in a considerable number of cases of Bright's disease the albumen present is due, in part only, to the disease of the kidney; the other part being more frequently due to what appears to myself to be some one of the forms of dyspepsia. Hence it is more frequently, I say, due to this, than any other single cause; for inflammatory action, of course, and more particularly when joined with the gouty diathesis, will likewise cause it. Hence any means which benefits the dyspeptic state or whatever else the cause may be, lessens by so much the amount of albumen present in the urine. This may be illustrated in the following way. If we suppose the albumen to be represented by the number 4, our remedies may reduce this to 2, or even to 1; but there still remains an appreciable quantity, a trace, as it is called, and this it is which our remedies, I fear, cannot remove. And if any one will take the trouble to cast his eyes over the detail of those numerous cases which have been published as having been benefited or cured, he cannot fail to be struck with the very great number in which it is stated that, improved though the patient was, a trace of albumen was still to be found in the urine; the treatment, in fact, had removed the albumen which was due to what may be called functional derangement; but it had failed to affect that which was due to organic disease of the kidney.

The point to which attention has been drawn may appear to some to be of trivial importance. I believe, however, it is not so. It has always appeared to me that, by getting clear,

well-defined, and, above all, enlarged views of disease, our treatment will be the more satisfactory; and that the more accurate our diagnosis is, by precisely so much the more certain will our treatment be; and this, I take it, ought to be the great object of every one who pursues practical medicine. I may illustrate this by the very point to which I have been directing attention. Thus, all know that in many cases of Bright's disease treatment is, to a considerable extent, successful: that is, a certain amount of albumen disappears from the urine. But let it be known, in addition, why it is so; let it be announced that functional and organic disease of the kidney often coexist; and the reason at once becomes plain why our treatment has, to a certain extent, been successful; and the next time we are called on to treat cases of the same kind, is it too much to say that, our views being more determinate, the treatment will be undertaken with more confidence, and continued till all functional disease be removed?—when we may then hope that we may be able to keep whatever organic disease remains at bay.

Dr. Bright, I find, in one of his able and latest memoirs, gives it as his deliberate opinion that functional frequently precedes organic disease of the kidney. My wish is to advance a step further, by announcing that functional and organic disease frequently coexist; nor am I sure that I could put forward a stronger proof in favour of the importance of this position than the very fact that Dr. Bright has announced. But enough has been urged on this point for the present.

It only remains now to notice a question in connexion with the treatment of this disease; and which, it may be observed, I was chiefly led to by a consideration of the views already advanced.

Every one, I believe, who has written on Bright's disease, has given his opinion against the use of mercury in it. This opinion I must be allowed to call into question. Authority and numbers seem to have led to the idea that mercury acts as a downright poison in the affection; and that it is to be avoided in every way. I have no hesitation in saying that this rule—general though it may be—is too exclusive, and to be by no means constantly adhered to. Arising out of the views already put forward, I was led, a considerable time back, to try mercury cautiously; and more particularly in those cases where functional derangement seemed to have caused the presence of albumen. The mercury was used both as an alterative and by inducing its specific action; nor have I seen, for so far, any of those injurious results which writers have attributed to it. It will not

be supposed that I rushed at once to the use of this metal; on the contrary, in every instance, other means had been previously tried, but without avail. In the three cases narrated, this was particularly the case; and therefore it is that I have selected them. In the first, a variety of treatment had been used without success, till the patient was put on alterative doses of blue pill, and then it was that literally more than half the albumen disappeared, and the patient correspondingly improved. In the second I had tried also a variety of treatment, including alkalies, diuretics, purgatives, iron, baths, &c.; and at last I used mercury to salivation, and this on two several occasions, and with the result which has been stated. This patient was under my notice for about four years, and, you will recollect, died from cholera, his health otherwise being, at the period of this last attack, as well as it had been at any time during the previous four years. In the third instance given—a woman still under my care in hospital—the amount of albumen has been constantly very large; and I must say of this case, that every means, I believe, in ordinary use got a full trial, but without any good effect, till mercury to salivation was used; and then, and only then, benefit resulted. The presence of convulsions in this case reminds me, too, that where they complicate the anasarca which follows scarlatina, there is no single remedy which, I believe, is of equal efficacy with mercury. I have known two cases in which the dropsy itself, without any convulsions, resisted every means till salivation was induced, and then they disappeared. It is true that in these last cases there was no organic disease of the kidney. Still, they are so closely connected with the subject as to entitle them to notice here.

If the cases narrated be not proof that, in some instances at least, of albuminous urine arising from organic disease, mercury may be used with advantage, I am at a loss to know what is. It must be repeated, that these cases have been specially selected because other treatment had previously got the fullest trial, without benefit; and that the benefit did arise from the mercury does not admit of doubt, as it followed directly on its administration.

Let me not be misunderstood, however, as saying that mercury is any cure for albuminous urine, depending on organic affection of the kidney, or to the exclusion of other means. All I would advance is this,—that in some of these cases it may be employed, not only without injury, but with positive advantage, and this by inducing its alterative, as well as its specific effects. That common prudence is to be exercised,

no one can deny: the patient's constitution may not be in a suitable state for it, or the disease may be too far advanced; or other diseases, totally unsuited for mercury, may complicate that of the kidney, and so on. But these are points which apply to the use of mercury, no matter what the disease is we have to combat.

In conclusion, I would throw into propositions the two points—and I have limited myself in this paper to them—which it has been my wish to bring forward now:—

1. That functional frequently coexists with organic disease of the kidney.

2. That those cases in which the albumen diminishes under treatment are to be explained by the functional disease being cured—not the organic.

3. That in some cases of albuminous urine depending on organic disease of the kidney, mercury may be used with marked advantage, even after the failure of other remedies.

Art. IV.—*Selections from the Unpublished Manuscripts of the late* Abraham Colles, *Professor of Surgery to the Royal College of Surgeons of Ireland.* Edited by his Son, William Colles, F.R.C.S.I., Surgeon to Steevens' Hospital, &c.

(*Continued from* vol. xx. p. 342.)

No. 7.—On Diseases of the Urinary Organs.

1. STRICTURE.

On a superficial perusal of these cases, we are surprised to find such a small proportion marked as cases of stricture of the urethra; but there are a great many cases recorded where attempts had been made to pass catheters, and a detail of the success or failure in the attempt, and of the various expedients resorted to, either by judgment or chance, to insure their introduction; and they conclude by an endeavour to deduce some general rules for performing this operation: these rules, however, are only applicable to each particular case; I shall, therefore, merely insert a few of them.

"Catheterism succeeded in two cases by keeping up the pressure of a very curved silver catheter against the obstruction, when a slight and sudden additional force has got it past this obstruction."

"A large catheter was introduced to the obstruction; it was kept pressed for a minute or two; then a small one, which would not pass previously, readily got through."

" Passed a large curved catheter, holding the instrument on the abdomen; drew up the penis; and, by depressing the penis, and not touching the catheter, it passed smoothly."

" Passed a catheter where formerly I had to use the finger in ano, by employing a very curved instrument, keeping the point of it, as Mr. Peile says, hooking on the pubis, and running it rapidly into the bladder."

" Introduced a catheter by withdrawing it on coming to the obstruction, and then pushing it further down in the perineum."

In these cases, which are headed "introduction of catheters," no mention is made of the disease for which the operation was performed; and in some of them, after the first, or perhaps second, effort, a full-sized silver catheter has passed. These facts led very much to hesitation in pronouncing the patient labouring under stricture; so that at length we find the assertion is made that, in a great number of cases treated as stricture, no such disease existed. The following is a remarkable instance:—

Stone mistaken for Stricture. — July, 1821. Mr. M'N., aged 56, applied; formerly treated by Mr. Richards for stricture; he never passed any other than catgut bougies. I had failed in my first attempt to pass an instrument; next day a small metallic bougie passed the obstruction, and I felt the instrument strike against a stone which is fixed in a recess, or dilatation of the urethra.

There is one form of obstruction existing in the urethra, independent of stricture, and attended with remarkable symptoms, of which we give a few notes:—

Catheter stopped; no Stricture.—Dec. 1840. I have now three or four patients who are quite free from stricture of the urethra, and in whom I can pass the catheter freely until it reaches to the neck of the bladder; here it is stopped, and it is only by introducing the finger into the rectum, and endeavouring to draw the neck of the bladder, along with the gut, downwards and forwards, I have been enabled to pass it into the bladder.

Stricture near the Neck of the Bladder, causing Dysperma.— Dec. 24, 1838. Three cases complaining of delay in discharging semen in coitus, even supposing that it afterwards passed off by urethra; none had children, though married some years. On passing a large silver catheter, I find that there is a manifest obstruction a little anterior to the neck of the bladder, as if an eminence arose from its under surface.

An accident attending the introduction of the catheter is an occurrence more often met with than recorded:—

Accidents with Catheter.—Aug. 11, 1806. Introduced a catheter for Mr. M.; and, having pushed it forward, felt it go on, but not in a manner quite satisfactory to my feelings; therefore I introduced a finger into the rectum, and there found the end of the instrument; I hastily withdrew it. He was highly pleased, judging I had at last entered the bladder.

Aug. 20. He has not had any rigor; urine gives him but little pain in voiding; one of his testicles, which was formerly inflamed, has again swelled; no urine passed through the wound; bleeding has been very slight.

Another consequence sometimes following the use or wearing of instruments is, when a portion of the catheter or instrument gets into the urethra, or is broken off. I select the three following cases:—

John Thompson, aged 33, has had stricture of urethra these ten years, and had bougies occasionally passed by a surgeon.

December. He passed a willow twig, about six inches long, and smaller than the bougie he has used; this slipped from his fingers, and got beyond the orifice of the penis; he applied to a surgeon, who could not seize it with a forceps, seven days since; it caused very little inconvenience; he passed urine freely, but in a small stream; endeavoured to get it out by forcibly making urine, and by pressing with the fingers the end nearest the bladder, and with the other hand pushing back the penis. On the day of admission, going to bed, he said he felt it come more forward; and next morning, pressing with his fingers as before, removed it readily. Some inflammation followed, for which he was bled, purged, and stuped; still, difficulty in passing urine increased. On the 12th an incision was made in the perineum, near the scrotum, which was swollen, by which exit was given to a considerable quantity of pus.

Feb. 15, 1808. Martin Kennedy, aged 48, was a patient fourteen months ago for stricture; discharged May 20, 1807, with directions to pass one of Smith's metallic bougies every day; he did so regularly, but his urinary complaints are stationary; he makes water six or eight times in the night; the size of the stream varies, sometimes small and sometimes large, depending sometimes on the state of the bowels; found a crack in the instrument; on using it, Tuesday, 9th, it broke across about the middle, one half remaining in the urethra; attempts to extract it, by fixing the perineum, and pushing the instrument up and the urethra down, have no effect; in five hours after, it was withdrawn by the finger in ano, feeling the extremity and pushing it forwards; some scalding after.

In another case the portion of the catheter broke, and got into the bladder; operation of dividing the urethra not being successful, the operation of lithotomy was performed, and the catheter then removed by a forceps.

We have five or six cases, where, in a broken-down constitution, a single introduction of a catheter, and that without using any violence, has been followed by retention of urine, rigor, delirium, coma, and death, in twenty-four or forty-eight hours, or has ended fatally, in four or five days, by an attack of the chest.

On post-mortem examination there has been found, along with the stricture — which was, perhaps, the only symptom attracting attention — extensive disease of the kidney and bladder.

March 2, 1805. Toole, in very bad health, would not leave the hospital; for two or three months nothing was done; said he felt stronger, and requested the catheter might be introduced; at the beginning of the week I passed a silver catheter.

Saturday, Feb. 24. Tried a gum-elastic catheter; got it to the prostate, using some force to try and pass it; that day he had a rigor, and got an anodyne.

Sunday. Said he had been very thirsty during the night, and died soon after.

Post-mortem Examination.—A small quantity of brown serum in the abdomen; intestines distended with flatus; small intestines vascular, red; no lymph deposited; bladder small and thick; some lymph over left psoas muscle, and along the ureters to the left kidney, which was enlarged to twice its size, and covered by lymph; cream-like fluid interiorly from it; the bladder thickened, with black spots, and red lines.

All were worn-out patients, of some years' standing.

2. FISTULA IN PERINEO.

Of fistula in perineo we have many cases recorded; but as I directed attention to the subject in a former Number of this Journal, the selection now will not consist of many cases.

We have two distinct forms of this affection: one depending on previous disease in the urethra; and another where the urethra remains quite pervious, but the abscess occurs in a broken-down constitution; thus offering some analogy to fistula in ano, some cases of which occur in connexion with disease of the lungs.

In some of these cases, where no instrument would pass, or its introduction afforded no relief, and the perineum was oc-

cupied by a mass of a cartilaginous hardness, an operation was performed, sometimes with a staff introduced to the obstruction, sometimes without any guide.

An incision in the raphé, sometimes with great labour and searching, at length divided the urethra; then, by enlarging the opening anteriorly, divided the stricture, and allowed the introduction of the gum-elastic catheter. In one case, the patient was put to bed without the surgeon being certain whether he had opened the urethra; three died of rigor and urinary fever, in four or five days after; the remainder were all benefited by the operation.

I shall give merely the following fragment of a case, showing the course such disease may follow: the man evidently died soon after being operated on:—

Post-mortem Examination of Lalor.—June 31. A staff introduced by the wound in the perineum; its point was felt in the left iliac region; on cutting on the point, a large cavity was found containing blood; the finger introduced into this passed back to the edge of the sciatic notch, which was hard and rough; the abscess passed on to the dorsum of the ilium, under the gluteal muscles; there was not any stricture of the urethra, nor any opening on its floor; but on the upper surface, near the verumontanum, was a hole ⬭ this size.

Urinary.—Thomas Laird, aged 60, twenty years ago found some difficulty in passing urine, followed by abscess in perineo, leaving a fistula; eight years ago the difficulty in passing water increased; there is a hard tumour in the perineum, in which are several small holes, through which urine passes, and a staff felt a grating on passing about eight inches, and, on attempting to withdraw it, it seemed as if caught between two calculi; there is evidently no stricture; he gets up frequently at night; the urine deposits much mucus; he has had irregular shiverings these seven years; never had any venereal complaint; drinks hard; the disease seems to be in the membranous part of the urethra.

Nov. 27. Fourteen small stones extracted by incision in the perineum; the bladder seemed sound. That evening there was pain in the bladder; rigors, vomiting; he was bled and stuped.

Dec. 2. No stone to be felt on introducing the finger into the bladder; the finger in ano feels a wound admitting the point of the finger; on the left side of scrotum a small orifice gave exit to much pus from an abscess.

Dec. 17. Died.

3. PROSTATE GLAND.

With regard to the prostate gland, we have sufficient evidence to show, that it is subject to a form of disease hitherto not sufficiently attended to.

An abscess, without any inflammatory symptoms, and often without the patient being aware of any derangement, will form in the substance of one lobe; this will slowly make its exit in various directions; it sometimes opens into the urethra, and the patient suspects he has lately contracted a gonorrhœa, or that one formerly cured has relapsed, and has degenerated into a gleet; others will imagine they are affected by spermatorrhœa, especially when they observe one symptom often met in both diseases, that a costive motion will cause some of the discharge to issue from the penis.

Cases are recorded where the abscess has made its way outside the prostate gland, gradually spread, and at length surrounded the gland and urethra, and then make its way into the urethra; or will pass down to the perineum, and give rise to a form of fistula very difficult to cure; or it will open into the rectum, thus forming a communication between the two canals, so that the urine will be constantly lodged in the rectum, and the patient will be obliged to pass water frequently, and to do this he must sit on a vessel, as if going to stool. It is a remarkable circumstance, that no matter how large the opening may be, the fæces, although liquid, do not pass into the urethra.

This form of disease is not confined to old age; I find, in eighteen or twenty of the cases, the age varies from 20 to 30; these appear to have been treated for supposed gonorrhœa without inflammatory symptoms; they all appeared as if of a delicate constitution. In these cases, the introduction of the finger in ano would feel one lobe of the prostate tender on pressure; the point of the finger would sink into one spot more yielding than the rest, and this pressure would cause some thin fluid to flow from the urethra or other opening. In these cases the discharge may be arrested by treatment, but returns on the slightest cause. In a former paper I recorded some of these cases occurring in elderly persons, where the disease was attended with much urinary disturbance, and where considerable relief was afforded by puncturing the gland.

In younger subjects, where there is merely the discharge, complained of, the operation has been less frequently performed, and the result given in some as favourable, and in others as without producing any alteration.

I refrain from recording cases where the abscess opens into the urethra, for their chief importance would be merely a repetition of this examination, and few are continued to any conclusion.

I give a case where the abscess formed round the prostate, and appeared in the perineum. Here, in general, the urethra is free. An incision is made on the tumour, and the finger passes in and feels the prostate quite bare and insulated. This is a fertile source of fistula, independent of stricture.

Prostate.—July 31. Mr. S. applied to me. I saw him about nine months ago for profuse purulent discharge from the urethra, accompanied by enlarged prostate; he now applies on account of a tumour in the perineum, which has existed six weeks, and has advanced half way along the perineum. It has a solid feel, with a soft spot anteriorly; by pressing with one finger in ano, and another in the perineum, a fluctuation can be felt; prostate enlarged, hard, and tender; discharge from urethra as before; no difficulty or frequency in passing urine; general health good.

This abscess may open into the rectum, when it is a source of great annoyance to the patient; for the urine passes to the rectum, and in passing water he must go to stool; it is remarkable, as above said, that fæces do not pass through the urethra.

Urine from the Rectum.—I saw a preparation of the rectum and bladder of a man who, for the last three years of his life, passed all his urine through the anus,—not at intervals, but incessantly; this he attributed to the passing of a catheter. In it is a passage leading from the prostatic portion of the urethra upwards into the rectum; there is at the side of this a large abscess between the bladder and the rectum, opening into this passage. Why fæces did not pass through this down to the urethra, was, I suppose, in consequence of this abscess.

Urine from Urethra and Rectum.—Nov. 1832. Mr. O. H. passed a catheter; on Sunday he suddenly fell down comatose; on Monday he was apparently well, but his breathing became bad, and he died next day.

Here was an effect of urinary abscess; a communication between the rectum and the urethra. It is hard to say why the flatus should pass through the urethra, yet no fæces, even when liquid, for the opening was large enough to admit them. In passing urine he was obliged to go to stool. After all the urine is apparently evacuated, some drops flow involuntarily and scald him much. I am strongly of opinion that the majority of urinary fistulæ do not arise from stricture, but from an

opening in the prostatic portion of the urethra, near the verumontanum.

I also give a case in which it would appear as if a calculus was impacted in the urethra, and produced an abscess in the part:—

Retention of Urine, &c., relieved by passing a Calculus.—Nov. 22, 1840. Mr. R. applied to me on the 16th, saying that he had been threatened, for three or four nights previously, with retention of urine, though he passed it tolerably well during the day till about 7 o'clock. The night before, he had complete retention; the catheter meets a slight obstruction about its triangular ligament.

17th. Drew off the urine; also on the 18th, when he suffered some uneasiness after it; I examined the prostate, and by pressing pretty strongly, felt the right lobe soft, and caused a good deal of thin purulent fluid to pass from the urethra; this, he said, removed all uneasiness.

19th. He was so much relieved that he declined having the catheter passed.

20th. He had passed a bad night; also on the 21st, when pressure on the prostate was repeated.

22nd. After a bad night, while passing water into a tumbler, he heard a body strike it; on examining, he found a small mulberry calculus; since then, his urine has passed freely.

I also give a case to show the length of time a patient may labour under the commonly recorded form of diseased prostate. I have also cases of this disease where the patient could only pass urine while sitting; another could pass none at stool; one was annoyed by the greater frequency of calls at night, another by day, and *vice versâ*; these details, however, are more curious than instructive.

Enlarged Prostate.—Dec. 1834. Mr. B——, aged 82, has laboured under diseased prostate for the last twenty years, during which period he never passed any urine except by means of a gum-elastic catheter; during the night he passed it every hour, getting up out of bed, yet he always appeared in good health and flesh; he occasionally suffered from urinary fever, with inflammation of testis, seldom painful or requiring much attention. He died of chest affection.

4. DISEASES OF THE BLADDER.

In classifying the affections of the bladder, it will be most convenient to consider—

1st. Cases of urinary irritation, without any apparent alteration in the urine.

2nd. When there is a quantity of muco-purulent fluid in the urine.

3rd. Where there is blood and urine, more or less intimately mixed.

4th. Affections of the walls of the bladder.

The first case shows the difficulty of distinguishing affections of the bladder and kidneys, at times:—

Frequent Micturition from diseased Kidney.—April, 1836. Mrs. H—— complains of most severe pain in passing water; she voids about four or five ounces each time; the urine is of a healthy appearance; no leucorrhœa; nothing wrong with the uterus; no calculus in the bladder; no blood with the urine.

Post-mortem Examination.—May, 1837. One of the kidneys was much diseased; no other disease to be discovered.

Urinary Irritation.—March, 1836. Master G——, aged 12, has been ill for three years; he has been, at times, obliged to sit on a close-stool for six weeks together, both by day and night; every five or ten minutes he has a violent forcing to pass urine, which comes in drops, and with a large quantity of white mucus; his legs are quite œdematous; pulse 102; he dreads eating, as he says it presses on his bladder; he takes laudanum. I sounded him three or four months ago, but did not find a calculus, or any morbid derangement of the bladder or urethra. He takes six ounces of laudanum in the day.

We have five or six cases recorded of urinary irritation in females, generally young, in whom there can be found no disease; the calls to pass urine are most frequent and painful. This affection seems very difficult to cure.

There are many cases where the urine deposited a quantity of thick, yellow, adhesive mucus and pus; many of these were connected with abscess in the neighbourhood; in others, the disease appeared confined to the bladder itself. In some of these cases (though they are not recorded), injections were found beneficial. The remedies given internally, and found beneficial, are mentioned in the following cases.

Muco-purulent Urine.—Oct. 1841. Miss K——, aged 25; three years ago the complaint commenced; it gradually increased in severity; the calls to pass urine are sometimes very frequent, and she finds difficulty in passing it; the calls are always more frequent in the evening; the urine, when passed, is cloudy,—when settled, there is a sediment the colour of pus, but thicker and more tenacious; the urine is acid, as also the sediment; she has a pale, delicate appearance; her appe-

tite is good; pulse natural. She received great benefit from a combination of alkaline solution and Batley's sedative.

Purulent Urine treated by Creasote.—Feb. 10, 1842. Mr. W——, aged 36, was afflicted with this complaint; he was treated for a long time with opiates, uva ursi, and alkalies, and perhaps other remedies. About a month ago I advised that he should also take four drops of creasote at bed-time. This morning I learn that he passes urine without pain, and less frequently; the deposits are very trifling, and the calls less frequent.

This and Mr. N.'s case go far to set up creasote as superior to any remedy I have tried in this disease.

Benefit from tincture of Galls.—Aug. 1842. I have tried this medicine in two cases where large quantities of mucus were discharged with the urine, with some benefit.

In cases of hematuria there is difficulty in distinguishing the source of the blood, whether from the kidney or the bladder. I insert a few cases which may help to clear up the difficulty, and also the effects of a few remedies.

Hematuria.—Feb. 8, 1840. Mr. C——, aged 30, was passing blood with the last part of the urine, with great pain; great irritation at the neck of the bladder, and straining, previous to any clots coming away; he had calls to pass urine every two or three hours. Various remedies were tried without effect, until he was put on dilute sulphuric acid, 30 drops; this was gradually increased; he now takes an ounce daily; the urine is now perfectly free from blood. He continued the acid till March.

An hospital patient was also cured.

June 6, 1839. I saw Miss B—— with Dr. M——; she had been passing bloody urine for ten days; she had no pain; no frequency; the complaint was not influenced by exercise; there was no cause for the disease. I tried various remedies ineffectually, until she used the acid. July 22. She is very much improved; nearly well.

Feb. 21, 1842. Mr H—— for the last two days has observed his urine bloody and thick; the colour uniform throughout; some coagula at the bottom of urine; retention, requiring an instrument yesterday; no scalding. He was cured by dilute sulphuric acid.

Examination of Fungous Bladder.—Oct. 20. A man, aged about 50, died in the hospital; he was admitted a few days before; I did not discover any stricture; the kidneys were both enlarged and soft; they were filled with a thin purulent matter;

ureters much enlarged; the bladder thickened, contracted, and hard. On opening the bladder, the same kind of fluid escaped as was found in the kidneys; a red, flocculent substance was perceived, so soft and loose that at first it was considered as the internal coat of the bladder, but on closer examination it was found to be a growth from the inner coat, having its origin near one of the ureters, where it was very firm; an abscess was found in the prostate, about the size of a nut; it had no communication with any part.

Hematuria.—March, 1833. H. C——, aged 65; general health good; for three months past the urine flows quite clear for some time, then a clot will be expelled with some effort, and the stream becomes red; again it clears, and so on; the bladder is capacious, and expels urine with force; the urine, on settling, is of a dark colour.

May. He was much relieved by opium; the calls begin to be more frequent; the hands become pale and bloodless after breakfast; the face more blanched; he gets off the clots more easily when lying on his side.

June. He went to London; he had retention on the road; he saw Sir A. Cooper and Dr. Prout, who declare the disease to be in the bladder; they say if it were seated in the kidneys he would have dyspepsia and other symptoms attending on diseases of these organs.

He died of fungus of the bladder.

Bloody Urine.—June, 1849. W. B—— has had frequent calls to pass urine for the last year; after a journey he passes blood with the urine; the fluid is quite homogeneous; there are no clots in it; after twenty-four hours, the entire urine retains the blood colour; if he makes a false step, or comes with a stamp on the ground, it causes a desire to pass urine; dipping the hands in cold water has the same effect; the prostate is not enlarged, but he suffers much more pain when the finger is pressed on the bladder above the prostate; he refers the uneasiness to the region of the bladder. This case, however, differs from H. C——'s, who had fungus, and who observed blood to flow only in part of the stream. He improved under treatment.

Tenderness of the Bladder above the Prostate.—W. H—— passes purulent urine with great pain, and is sinking under hectic; on examining the bladder per anum, each lobe of the prostate is felt natural; passing the finger beyond had the sensation as if there was a hollow spot, and here pressure caused much pain; the prostate and neck of the bladder seem to come down near to the verge of the anus. I find the same remark

in Mr. B——'s case. Does not this suggest whether this is not a diagnostic sign of a disease seated in the neck of the bladder?

Hematuria.—July, 1832. I saw a man, aged 30, of full habit, subject to hematuria; it commenced slightly, twelve months ago; it is now so severe that the coagulum on some days has weighed 1 lb.; the blood passes only coagulated, and imparts little colour to the water; he is confined to bed from weakness; he complains of pain in his back; he has no pain in the region of the bladder; his pulse is small and regular. Tried all known remedies without benefit.

Aug. 30. Died a week ago, from absolute repeated loss of blood.

On examination, some slight disease of the prostate was found; there was no disease in the bladder; one ureter was very much distended, as was also the pelvis of the kidney; the kidney as if converted into fat; it was soft and pale; the other kidney was similarly affected, though in a less degree. I could not discover from whence the blood came.

Jan., 1841. Mr. F——, aged 50, had some affection of the heart, and also of the head, which both went off when the present attack commenced; he says that for many months the urine appeared mixed with blood; he has no frequency or pain in passing urine; the quantity is also natural; he passes coagula with the urine; some require great exertion for some seconds before they are discharged; they generally come off before the urine; the urine is uniformly tinged with blood as it flows from the urethra; the stream is of a good size; he has no pain in his loins; his appetite is good; he sleeps well; his face is florid, but the white parts are of a lemon hue. I tried all sorts of medicine.

Surgeon K—— made a post-mortem examination, and found both kidneys converted into a sort of fatty substance, and coagula were found in them.

5. DEFICIENCY IN THE BLADDER.

The cases in which there appears to be a diseased or deficient condition in the walls of the bladder itself are few; and in some, post-mortem examination testifies as to the accuracy of diagnosis, that the appearance of fæces in the urine is sufficient to indicate a communication between the intestine and bladder, for it was previously remarked, that when the communication exists between the rectum and urethra, no fæces pass by the urethra.

Fæces in the Urine.—July 16. William Murray, aged 54; of

a robust habit till January last; he then felt a fulness in the left iliac region, which was relieved by purgatives; it returned, and was relieved occasionally since; he lost his appetite, strength, and flesh, and became very thirsty; yet there was no functional derangement.

On Sunday last, on attempting to pass wind per anum, a part of it came through the urethra; previous to this he would find the wind to stick in spots in the rectum.

Monday. Rigor, hiccup; observed a small portion of fæces passing along with the urine; rigors returned; he suffers great pain in the urethra on passing urine; no hardness or fulness; a large catheter passed readily into the bladder, and drew off urine mixed with fæces; no enlargement of prostate; finger in anus did not discover any part of the catheter bare. Gum-elastic instrument borne only about one hour; no matter had been discharged by stool or urethra.

October 1. Died about eight days ago. I suspect the communication to have existed between the colon and bladder.

February 28. William Stafford, a very emaciated man, aged about 36, laboured under stricture of the urethra for many years; he was relieved by different surgeons; of late he perceived, by smell and appearance, some fæces passed with the urine; flatus also escaped from the urethra; I could not pass the small silver catheter further than three inches; finger in the anus found, about one inch up, a shelf forming a stricture, which with difficulty admitted the point of the finger; had rigors the three succeeding days; pain, swelling, and redness in the right iliac region, gradually extending towards umbilicus.

March 8th. Mr. R—— made an incision.

Communication of Bladder, Kidney, and Rectum.—1812. Mr. ——, aged 40, apparently healthy and strong, was, about last Christmas, attacked with great weakness and profuse perspirations, and repeated attacks of shivering. Three weeks previous to admission he had retention of urine, followed by frequent desire to pass urine, with great pain; he passed a small quantity each time; the urine appeared natural. On examination the hypogastric region was tense from the distended bladder; he could only pass urine at stool, about a wine-glassful each time; the catheter passed readily, and drew off a large quantity of urine mixed with a thick fluid of a milky whiteness; the bladder, in ten or twelve days, recovered its power of expelling the urine, when at night he was suddenly seized with great debility, which continued for two or three days. The urine constantly dropped into a vessel held between his legs; the sedi-

ment continued in abundance; he had night sweats. He died in about three weeks after the attack of debility.

Post-mortem Examination.—Left kidney enlarged, irregular; portions containing thick pus both in cortical and medullary substance; left ureter much distended in the vicinity of the bladder; right kidney not much altered; each ureter filled by the same milky fluid as was observed in the urine; bladder contracted; coats thickened, fasciculated, forming many lacunæ or recesses; on the left side of bladder, near the neck, was an abscess which communicated with the rectum, and also with the portion of the urethra surrounded by the prostate; another abscess was found at the upper and anterior part of bladder communicating with it.

Opening in the Wall of the Bladder.—August, 1834. A patient suffered from a fistula in the perineum, and above the pubes; though a full-sized instrument readily entered the bladder, the fistula had closed, but he said he felt a dew or moisture when passing water; he died of cholera. On examination, the finger sunk into an abscess behind the right ramus of the pubes. On removing the parts a hole was found, as large as half-a-crown, on the anterior wall of the bladder; the coats around it were much thinned; edges smooth in different spots; the mucous coat was wanting, and in dark purple spots; one kidney had pus in its calices, the other was healthy.

Bladder probably wounded anteriorly by the Catheter.—June 30th. Mr. C——, aged 50, occasionally subject to difficulty in passing urine; on the night of June 1st he awoke with complete retention, great straining; the urine was drawn off on Wednesday.

Thursday, 3rd. I drew off about a pint of thick urine, and found the prostate much enlarged; the abdomen still appeared swelled, as if from a distended bladder.

Friday, 4th. Drew off urine; had not the straining; nor did he experience the relief generally observed in cases of retention; swelling of belly increasing.

Saturday. Swelling increased, with great tenderness; a slight blush in patches, with œdema of the integuments; about midway between the pubes and umbilicus, I cut down on the linea alba, and found the integuments perfectly healthy. Dr. M—— saw him, and by his advice I made him stand up after the urine came away; on doing so, and pushing in the catheter, a small quantity of bloody-coloured fetid urine came away.

Sunday, 6th. I saw him; he was suffering much pain in the tumour and along the thorax; pulse quick and small, like

one suffering from peritoneal inflammation; enlarged the opening with a director, and now urine (evidenced by smell), flowed freely; it required much pressure to get away a part.

Evening. Little or no relief, though urine flowed from the wound.

Monday, 7th. Died.

Post-mortem Examination.—I found the cellular membrane beneath the peritoneum was sloughy; on opening the bladder, prostate projected very considerably into it; inner coat of bladder vascular; near the upper fundus was a small circular opening in the mucous coat, it did not go through the muscular; no sign of ulceration.

6. LITHOTOMY.

I have in vain sought for a record of the operations for lithotomy performed by my father, and the result attending them, which would have been interesting, for he operated in a great number of cases, and I believe with more than average success.

I find, however, one case evidently recorded with care, and intended as a guide in further operations, or in description for his lectures. It was written at an early period, and, I believe, adhered to constantly.

In the case recorded he had recourse to Peile's knife and director, which he seldom used in subsequent operations.

Remarks on a Case.—1808. The staff should be held between the thumb and two fingers: this enables us to feel more surely cutting into the urethra, and, what is of more importance, enables us to depress the handle of the staff when about to divide the prostate. The staff should be kept well up in the angle of the pubes, and at the same time made to project a little into the perineum, as by this means you will have more room for your incisions, and run less hazard of wounding the rectum or pudic artery.

One incision through the integuments, and another through the muscles of the perineum, are all to be made before cutting on the staff. The staff is soon felt by the point of the knife, and by moving it from side to side of the groove. This incision should now be enlarged by dividing the membranous part of the urethra freely. Above all things, be careful to commence your incision of the membranous part sufficiently low, for by cutting high up you cut the bulb of the urethra, and cause a troublesome bleeding. The great disadvantage of entering the urethra too high up, consequently commencing the division of the prostate too far forwards, is, that the knife must run on the

arch or convex part of the staff. This causes the great difficulty in the operation, to keep the back of the knife running along a convex part of the groove, and makes the operator use considerable force, and is in danger of throwing the knife out of the groove, and plunging into the space between the rectum and the bladder, or into the rectum.

The knife should run in a straight groove, and therefore the staff should have a long beak, nearly straight from the point to the arch; about two inches for an adult. You must depress the left hand with the staff, and the right hand with the knife, at the same time that you press forward the knife, especially in young subjects.

You may divide such parts as require it on withdrawing the knife from the bladder. Pass in the right index finger to ascertain the size of the opening, and move it about to enlarge it.

The blunt gorget introduced, or the finger, is the only security for passing any other instrument into the bladder; then introduce the forceps from below upwards, as the anatomy of the part directs. The forceps should be proportioned to the subject.

"1809. Kelly, a farmer, aged 24, was labouring under symptoms of stone as long as he can recollect. I operated on Monday.

"I held the staff slightly prominent in the perineum, and on the second cut I found an artery bleed at the upper end of the wound. I now readily found the staff by pushing the point of the knife at the upper extremity of the incision, through a pretty considerable depth of parts. Having ascertained that the knife was in the groove, by pressing its point against the staff, and moving it from side to side in the groove, I now depressed the handle of the staff, and consequently threw the groove on the back of the knife, the point of the knife being the centre of motion of the staff. I now pushed the knife forwards, and directed it upwards by depressing my right hand. In this movement I endeavoured to feel the groove in the staff with the back of the knife, and to direct my incision upwards, recollecting that the part of the bladder to be divided lies closely attached to the pubes, while the external incision lies below the pubes; or, in other words, recollecting, as Camper in his 'Demonstrations' proves, that the axis of the pelvis and that of the bladder cross each other; or, in still plainer terms, recollecting that the parts to be divided were as if placed above me, and that therefore the incision should be made upwards. This step of the operation I readily performed. I

had determined to divide the prostate freely when making the cut out, but did not feel the parts yield as I expected; however, the urine now flowed. I introduced Peile's director from below upwards, and then the knife, with the usual attention to the posture of the director and the obliquity of the knife. The opening was now sufficiently large; and as I passed in my finger along the director I felt the stone lying in the neck of the bladder, to the left side. The forceps was passed on the director from below upwards; and, after a short time, the stone not being found, I passed my finger into the rectum, and threw the stone into the blades of the forceps, and readily extracted it."

In operating he seldom used more than the one knife. He held the staff himself, and had the integuments of the perineum put on the stretch by the hands of an assistant on each side of the perineum. He doubted the necessity of having the bladder full of fluid, for the parts to be divided are fixed, and are not rendered more prominent by distention of the bladder.

Art. V.—*On the Cause of early dangerous Symptoms in Febrile Diseases: with Observations on Re-vaccination*[a]. By William J. Cummins, M. D., &c., Physician to the Cork Dispensary; Acting Surgeon of H. M. 99th Regt.; Lecturer on Midwifery and Diseases of Women and Children at the Cork School of Medicine.

There is scarcely any epidemic or contagious fever with which we are acquainted which does not occasionally present individual examples of a character so malignant, as to mask the more usual symptoms of the disorder by a general overwhelming of the vital powers, which hurries its victims to the grave with appalling rapidity. Examples of this kind occur alike, whether the poison which causes the disease is received into the system by contagion, from malaria, or from certain atmospheric conditions inappreciable by our senses, but proved to have existence by the effects which they produce upon such individuals as are subjected to their influence. Now, it is remarkable that, from whatever source the poison has been derived, whether by contagion, from malaria, or from atmospheric changes, the most marked and earliest symptom it produces is a general congestion, or more or less complete stagnation of blood in the capil-

[a] Read before the Cork Medical and Surgical Society.

laries throughout the entire system. The effect of so many different poisons being thus similar, when applied in a concentrated form, it may, I think, be argued that they all operate upon the same portion of the complicated machinery which constitutes the life, with all its wondrous functions, of the animal body. But as the poison of contagious diseases is capable of reproducing itself in the system, it must act primarily on the blood; and as I believe that non-contagious epidemic poisons, though in many cases received into the system by absorption into the blood-vessels, are incapable of operating injuriously on the blood itself, being only conveyed along its current to that part of the system upon which they are destined to operate, it is evident that it is not to the FIRST effect of the poison that we must look for the cause of the congestion which is produced equally by poisons which directly disorganize the blood, and those which, whether applied through this medium or not, are incapable of deteriorating it primarily, although, as we shall see by-and-by, they may become indirectly the cause of *secondary* changes in that fluid. For the solution of the problem, how is it that so many different causes produce the same effect—congestion—we must trace the physiological causes of capillary circulation.

But it is needless to enter into a detail of the affinities and forces which impel the vital stream along these microscopic channels; it is sufficient for our purpose to allude to the power which presides over the circulation through them, and which, if it does not lend its aid towards carrying the blood corpuscles onward, at least regulates the caliber of the vessels which contain them, and thus supports their circulation. It is the sympathetic system of nerves which imparts tone to these little vessels; when it ceases to preside over them, they become dilated, and the circulation through them is retarded,—in other words, congestion is the result[a].

If the sciatic nerve of a frog be divided below the connecting branch, i. e. below the point where sympathetic elements are introduced into it, we find that, in addition to paralysis, loss of sensation, and other evidences of want of cerebro-spinal power, the circulation is rendered indolent and irregular, the dilated vessels are overcharged with blood corpuscles, and in a few vessels the blood is arrested. What is this but a local congestive fever, caused by paralysis of the sympathetic nerve? Pathology further illustrates this point. In a case of anæsthesia of the left trigeminus, Dr. Romberg

[a] Romberg on the Nervous System, Sydenham Society's edition, vol. i. p. 196.

observed a great tendency to hemorrhage in the nose and gums of the affected side; the overloaded capillaries of the part relieving themselves by permitting their contents to exude, just as occurs in congestive yellow fever and other similar diseases. And again, in a case of disease of the Casserian ganglion of the fifth, the same observer noticed that the gums became soddened and hemorrhagic. With such facts as these before us, it is impossible to doubt that epidemic and contagious poisons, whether received directly from without, or indirectly through a diseased condition of the fluid from which the system demands nutriment, produce congestion through the medium of the sympathetic nervous system. Hence, it would appear that the sequence of events in each is the following:—

A. *In contagious or blood fevers.*

1st. The poison causes changes in the blood, and the change produced varies according to the nature of the poison, whether it be the variolous, the scarlatina, the typhus, &c.

2nd. The *diseased* blood being applied to the sympathetic nervous system, in common with the other textures of the body, causes disordered functions of that portion of the economy.

3rd. The capillaries being under the control of the sympathetic nerve, lose their tone, become dilated, and the circulation through them retarded, giving rise to general congestion.

B. *In non-contagious or purely nervous fevers such as yellow fever, remittent and intermittent, &c.*

1st. The epidemic poison, however applied, poisons the sympathetic nervous system, rendering it unequal to the performance of its functions.

2nd. Congestion results: thus, we find that, in blood diseases, the congestion is a tertiary, and, in epidemic non-contagious diseases, it is a secondary lesion.

There are, of course, other effects besides congestion produced by the disordered function of the sympathetic nerve, as well as by the disease of the blood, such as suppressed or altered secretions, delirium, &c.; and the congestion itself must result before long in disease of the blood, even when that lesion has not been primary; but I do not wish to enter into these matters, as I am at present treating merely of those rapidly fatal cases of disease, in which congestion, though coexistent with other pathological conditions, is the most marked and dangerous phenomenon of the case.

In practice, we meet with various degrees of malignancy, even amongst these unusually malignant cases. The most

aggravated I have seen occurred in the person of a gentleman of intemperate habits, who was placed under arrest for drunkenness during the prevalence of yellow fever on board ship. On the third or fourth day of his confinement, I happened to see him chatting and laughing gaily in his cabin about 8 o'clock in the evening. Shortly after, he was attacked quite suddenly with pain in the head and back, followed by collapse, with a pulse full and excessively rapid, but, at the same time, scarcely communicating an impulse to the finger placed upon it, and easily obliterated by the slightest pressure. His skin was dark, his eyes bloodshot, and the mucous membrane of the tongue and fauces dark red. In a short time the overloaded capillaries of the stomach and intestines poured out black vomit (blood) copiously, which was discharged by stool and vomiting; he never rallied, and was a corpse shortly after midnight.

A case which I believe to have been somewhat similar to this occurred in this city a few months since, but unfortunately I did not see it, and can only allude to it as it was described to me by the mother. A girl, aged 18, whose brothers and sisters were ill in scarlatina, was attending to her duties, apparently well, the afternoon of the day she was taken ill. Towards evening she complained of sore throat and slight headach. She rapidly became worse, and died the next morning, with symptoms of great prostration.

Dr. Hare informed me that he has met with more than one instance of the same kind during the late severe visitation of scarlatina in this city. Such cases as these are the result of[a] "those pestilential vapours and poisonous exhalations which make their way to the very penetralia of the body, inducing death almost before disordered action can be said to have set in;" and in many cases, as I have already hinted, I think it probable that they make their way to the penetralia of the body, "to operate upon the more subtle constituents of animal natures"[b] otherwise than through the medium of the circulation, for the "modifications," "attractions," "repulsions," and "other attributes of magnetic and electric agencies," have a special, though little understood influence on the nervous system; and some, at least, of the mysterious epidemic poisons which produce such rapid death, must have a connexion with these, and probably, also, with similar undiscovered agencies. This being the case, we can well understand how an epidemic poison operates upon the nervous system without the intervention of the

[a] Spurgin's Materia Medica. [b] Idem.

blood, for electricity and its analogies certainly have a far more intimate connexion with the nervous system than with the blood.

The remedies for these malignant congestive fevers are powerful stimulants of all kinds; but there is one therapeutic agent belonging to this class upon which I rely far more than upon any other, because I conceive that it has a special action upon the sympathetic system; I mean quina in large doses. But this medicine is, of course, far more useful in fevers of the purely nervous class than in those where the blood is primarily diseased. In the one, as we should expect, it is capable of *cutting short* the disease; in the other, it is merely calculated to neutralize the tendency of the diseased blood to produce disordered functions of the sympathetic nerve, and thus keep the patient alive until the diseased blood has been thrown out of the system by crisis.

But I have been led by the interest of the subject to enter far more into these congestive fevers than I had intended; my object in glancing at them was only to establish a line of demarcation between the early dangerous symptoms produced in congestive or malignant cases, and those which are sometimes met with as the result of an *error loci* of the poison in blood diseases. A case which lately occurred in my practice illustrates the latter. The notes of it are as follows:—

Mary M'Dowell, aged 18, vaccinated during infancy, having been attending her brother in small-pox, was attacked fifteen days after her first exposure to contagion, with headach, nausea, &c. On the third day of her illness I was called to see her, and found her skin hot, pulse quick, tongue furred, &c. I ordered the usual medicines. About 3 o'clock in the afternoon she became stupid and heavy, and rapidly lapsed into a state of coma. As I was out of the way, Dr. Smith visited her, and prescribed a purgative of calomel and an enema. Early next morning (4th day) I saw her; she presented the following symptoms,—comatose, and cannot be roused; radial pulse, 130, weak and compressible; carotids and temporals pulsating violently; skin, especially of the head, hot; conjunctivæ injected; pupils dilated, but contract sluggishly when a candle is brought near them; teeth firmly clenched; slight twitching of the oral muscles; respiration natural; bowels have discharged largely, but involuntarily; no urine has been passed since 3 o'clock yesterday, and there is a large hypogastric tumour.

I drew off nearly a quart of urine by catheter; ordered the head to be shaved, and leeches and cold applications to be applied, mustard to the legs, thighs, &c. &c.

I again saw her in the afternoon; she was still perfectly insensible, and now every part of her body was violently convulsed. I directed that the drain from the leech-holes should not be checked, and prescribed calomel and croton oil. At my evening visit I found her rather quieter, but the attendants state that the convulsions have been very severe all day.

5th day. The nurse reports that she was much convulsed the beginning of the night, but was tranquil towards morning, and appeared to sleep. Between 9 and 11 A. M., she had three fits of convulsions. She now appears to recognise, but cannot speak or protrude the tongue, although she can open the mouth. A few scattered papulæ have appeared on the face and chest. Bowels have not been opened since. No urine has been passed, so I had again recourse to the catheter, and emptied the bladder. I ordered a blister to the shaven scalp, and powders of calomel and James' powder every third hour. Evening. Rather improved; no return of convulsions. I directed that an enema should be administered.

6th day. No return of convulsions; seems conscious, but is unable to speak or protrude the tongue; she moans frequently; papulæ are more numerous over the face and body; pulse 96, feeble. She appears quite prostrated, and the feet and hands are cold. Wine appeared indicated, and I directed that it should be cautiously given in small quantity. Bowels have been opened involuntarily; the catheter was again necessary. The powders to be continued. Evening. Has taken three ounces of wine; now lies perfectly unconscious, occasionally moaning; pupil dilated, and almost immovable; pulse, though still small, is rather hard; skin hot; blister on scalp has not risen well. I directed that tartar emetic ointment should be rubbed into it; the powders to be continued; omit the wine.

7th day. She continued in much the same alarming condition the greater part of the night. About 7 A. M. a copious secretion of urine was passed under her, and consciousness, but still without the power of speech, was soon after restored. She is now (11 A. M.) lying on the side, in a tranquil sleep. The face is covered with non-coherent vesicles of small-pox, which are also pretty thickly sprinkled over the rest of the body. Evening. She has been restless and irritable since morning, continually starting up in the bed, and tossing the extremities wildly about. I desired the nurse to administer an enema; it was followed by a copious tarry discharge, and in a short time she became composed, and passed a good night.

8th day. Still unable to articulate, but appears conscious and is evidently improved; I allowed arrow-root and a little

wine. Evening. She has been gradually getting worse all day, and I find her this evening in a semi-comatose condition, and scarcely to be roused; pulse quick and weak; pupil dilated; I had the tartar emetic ointment again well rubbed into the scalp, and gave her a dose of calomel and croton oil; omit the wine.

9th day. The medicine brought away a large black discharge from the bowels, and she is much improved this morning; is conscious, but the tongue still seems paralyzed, as she cannot protrude it or speak; pulse 110; eruption pustular; gums spongy; scalp very sore; omit the powders and ointment. Evening. Feverish, restless, and irritable, complaining greatly of soreness of head and all over the body; there has been no sleep since the night before last; I prescribed a mixture consisting of a grain of tartar emetic, a drachm of laudanum, and four ounces of water, of which a teaspoonful was to be taken every second hour until sleep came on; she vomited a little after the first few doses, but soon fell into a quiet slumber, which lasted for several hours.

10th day. Appears much refreshed; pulse 94; perfectly conscious, but cannot speak.

11th day. Much better; scalp very sore; two large sloughs, besides several smaller ones have formed; pulse quick and weak. In the evening I ordered ten drops of laudanum every second hour until sleep should come on.

12th day. Took four doses of the opiate, and slept well during the remainder of the night; can protrude the tongue and articulate indistinctly this morning. I allowed a little wine and chicken broth.

13th day. Report favourable.

14th day. The bowels have not been opened the last two days; during the day she was a little delirious and feverish, but all unpleasant symptoms were removed by a purgative.

From this date the report was uniformly a favourable one, but convalescence was slow, and the articulation is indistinct even at the present time, though nearly two months have elapsed since the commencement of the patient's illness.

The sloughs on the head gave great trouble, and at one time I feared that an exfoliation of bone must take place; but fortunately they became detached without any bad result, and the ulcers have now completely cicatrized. She is still feeble, but as the appetite is good, and she takes plenty of nourishment and cod-liver oil, I hope she will soon be as strong as ever.

It is not a little remarkable that this girl's brother, who had

small-pox before her, suffered from a tendency to stupor prior to the appearance of the eruption, which did not come out until the sixth day, after which he improved and convalesced rapidly. He was attended by my friend Dr. Cremin, during my temporary absence from Cork. Subsequent to my return I revaccinated the subject of the above case, but no vaccine vesicle was formed, as the contagion of small-pox had anticipated the operation, although the first symptom of disease did not appear until the sixth day after the vaccination. This case illustrates the occurrence of most alarming symptoms during the invasion of small-pox, but differs widely from the congestive varieties of febrile diseases, which are perhaps more common, and certainly more dangerous. In this form of these diseases, the epidemic or contagious poison, as the case may be, is received into the blood, and produces its specific changes on that fluid, but instead of being eliminated by the skin it is directed by some *error loci*, the result, perhaps (as in this case), of hereditary predisposition, to an internal organ, such as the brain, causing coma, convulsions, &c.

In the congestive variety, such an overdose of the poison has been received, that it completely paralyzes the animal functions, whereas, in such cases as the one I have detailed, the poison may be received in less than average quantity into the system, but rapidly prove dangerous to life from its being concentrated, if I may use the term, in one part of the body.

Now it would be of little importance to dwell thus upon the pathology of these two forms of early dangerous symptoms in epidemic and contagious diseases, were it not that an important point in practice is to be decided by it, for it is a common idea that if a patient is in danger of death before the third or fourth day in any febrile affection, he must have received an overdose of the poison,—the case must consequently be a malignant one, and wine must be given.

The case before us proves the sophistry of such reasoning, for wine invariably caused a return of the bad symptoms; and further, the discrete character of the eruption, and the fact of the patient having been vaccinated in infancy, put a veto upon the hypothesis that an overdose of the poison was in operation.

The danger, then, did not arise from an overwhelming of the vital energy of the system by the poison, but was caused by its determination to a certain point.

The indication then evidently was to relieve the affected organ by leeching, and counter-irritation on the scalp and ex-

tremities, and the success of this treatment, carried out with a bold hand, was the means which, perhaps, saved the patient from an almost certain death.

The symptoms of this case were certainly more indicative of phrenitis or meningitis, than of variola, and had it not been for the admitted exposure of the patient to contagion, the correct diagnosis could not have been made. Indeed, had I met the same symptoms under other circumstances, I should have carried depletion much further. It is remarkable that the symptoms of blood poisoning of the brain should so closely resemble the phenomena produced by determination of blood to the organ, and that, notwithstanding the similarity, the medicine which so especially aggravates the one is frequently found beneficial in the other; I allude to opium. On the evening of the ninth day I found my patient suffering from such excessive restlessness and disquietude, that I was obliged to prescribe this medicine in combination with tartar emetic, and subsequently alone; and the beneficial result of its action exceeded my anticipations. I think opium is much less to be feared in head symptoms with dilatation of the pupil, than when contraction is present, for, however it is that this drug induces sleep, it certainly produces a condition of the brain, of which contraction of the pupil is an invariable symptom.

Observations on Re-vaccination.—My friend, Dr. Harvey, has so lately occupied the attention of the Society with his interesting paper on Re-vaccination[a], that it is useless for me to dwell on the subject; but as there is a prevalent idea that persons re-vaccinated during an epidemic of small-pox are thereby rendered for the time more susceptible of the influence of contagion, and as the above-cited case at first sight seems to bear out this hypothesis, I take this opportunity to register my opinion against it.

During the present, or rather late epidemic of variola, I have re-vaccinated over a hundred persons. These individuals were exposed (in common with all the citizens of Cork) to the contagious pestilence that lurked in every corner of the city, and many of them, I know, were directly exposed to contagion during the formation of the vesicle. Amongst others I re-vaccinated my friend, Dr. H. Hobart, and myself, and our duties constantly exposed us both to most concentrated contagion in the dwellings of the poor. Now, out of all the cases thus operated upon, two only took small-pox: one of them the

[a] See last Number of this Journal, p. 477.

patient whose case is noted above, the other a boy residing in my dispensary. *In neither of these cases was the operation successful*,—so that they militate rather against the theory of revaccination rendering the system more prone to contagion, than in its favour; especially as in a very large proportion of the persons re-vaccinated, a more or less perfect vesicle was formed. It seems to me that the success of the operation for re-vaccination proves that the former vaccination had ceased to protect the system entirely from small-pox in that individual case, and the more or less perfect vesicle produced is a measure of the extent to which variola would have been modified had its contagion been received into the system. I cannot agree with the views of some authors, that vaccinia and variola are the same disease, because a case of inoculated small-pox, though occasionally marked by only a single vesicle at the point of puncture, may communicate the most virulent form of the disease by infection to another individual; whereas vaccinia never impregnates the surrounding atmosphere, and is incapable of communicating small-pox even by direct inoculation. I might bring forward other disproof of their identity, but I think this one is conclusive. They are, however, analogous diseases, and if I might speculate a little, I should say that they are both matters of different kind, but capable of operating on the same constituent of the blood, reproducing themselves on the same pabulum and destroying it, so that the one cannot follow upon the other, until a certain, or rather uncertain, period has elapsed, during which their pabulum is reproduced to a greater or less extent in the system, laying it open to a more or less spurious form of either disease. As far as my observations go, the time which either vaccinia or variola protects the system is variable, so that it is impossible to say when a second vaccination becomes necessary; and this is what we should expect from our observations of the caprice of other diseases which usually occur only once in a lifetime.

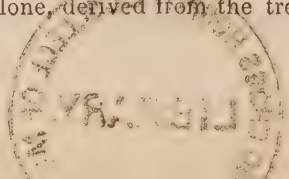
Some constitutions are so disposed to certain diseases, such as scarlatina and measles, that we find them attacked two or even three times with the same. The only conclusion, then, that can be drawn is, that as vaccination is *a perfectly harmless* operation, and has a limit to the period during which it protects most constitutions, the prudent physician should recommend its occasional performance.

Art. VI.—*On some of the Affections of the Cornea.* By S. Browne, R. N., M. R. C. S. Eng., Surgeon to the Belfast General Hospital and Ophthalmic Institution.

Before entering upon any description of the diseases to which the cornea is liable, I beg leave to submit a few observations regarding the structure of that important portion of the organ of vision, and to remind my readers that this apparently homogeneous membrane is really composed of several tissues, differing from each other in certain particulars, and that, though these are intimately connected, each has, independently, a special relation or union with some one of the other tunics of the eye.

The cornea, then, is clearly divisible into five separate tissues or laminæ, which Messrs. Todd and Bowman, in their "Physiological Anatomy," have described as the "conjunctival layer of epithelium, the anterior elastic lamina, the cornea proper, the posterior elastic lamina, and the epithelium of the aqueous humour." The conjunctival epithelium, as its name implies, is the epithelial structure of the conjunctiva continued over the cornea, and resting upon its anterior elastic lamina, which seems in this situation to represent the basement membrane of the mucous system. This epithelial layer can be very easily scraped off the surface of a living or fresh eye, and is readily repaired when injured, a fact frequently observed by those who are in the habit of removing foreign bodies that have lodged in that structure; for although a considerable patch of the epithelium may have been detached, along with the foreign particle, the structure is renewed, in a very brief period, with all its normal transparency and polish of surface quite restored. The anterior elastic lamina is intimately united to the cornea proper by a multitude of fine filamentous cords, which are products of the elastic lamina, and are allied to the yellow element of the areolar tissue; these sink into the laminated texture of the cornea proper, and thus serve not only to effect complete union between these tissues, but also, by bracing the parts together, to maintain the requisite curvature of the front of the cornea. At the exact line of union between the sclerotic and the anterior elastic lamina the conjunctiva is inseparably united to both, and seems to be continuous with the latter; at least it is certain that its epithelium passes over the elastic lamina, and that, at this point, the remaining structure of the mucous membrane either ceases, or, as is my own opinion, converted into the elastic tissue of the cornea. The next division, or lamellated portion of the cornea, is that upon which the strength of the tunic mainly depends; it is continuous with the structure of

the sclerotic, the fibres of which, from having been interlaced, and, as it were, *felted* together, lengthen and flatten out into a membranous texture, the filaments usually following the curves of the cornea; this membranous structure assumes the laminated form, and thus several lamellæ are produced which are intimately united to each other, and which run into each other at numerous points, so that it is impossible to trace any separate lamella over even a very small part of the cornea. The fine areolar tissue which unites these lamellæ contains minute tubular spaces, the existence of which can be shown by injecting them with mercury or coloured size, through a fine puncture made in the elastic lamina. These, in the natural condition of the eye, do not really exist as open tubes, but are merely spaces in the connecting areolar tissue, whose sides are in close apposition and moistened in the manner of other areolar structures; in disease, however, they admit of the exudation of fluid, and account for the appearance which the cornea, in certain morbid conditions, assumes. Within the lamellated cornea is the very thin membrane which is styled the posterior elastic lamina; this is loosely united to the cornea proper, and is of a structure differing from the rest of the corneal tissues, as it does not become opaque by the action of acids, or by maceration, or by boiling; it is highly transparent, is hard and lacerable, and yet possesses great elasticity. At the margin of the cornea proper, where this lamina ends, and where it has become thinner, it is united to the iris in a remarkable manner; a network of fine elastic fibres stretches from the border of the elastic lamina across the rim of the anterior chamber of the aqueous humour, and through that fluid to the front part of the iris, into which they are firmly implanted, thus forming an intimate union with that membrane, and through it with the choroid coat. Hence we perceive, that the different textures of which the cornea is composed, while closely joined one to the other, have each a special relation to some other structure of the eye; and hence we may expect certain sympathies to exist, and, in certain affections of the cornea, that other parts beside its own structure will be implicated in the disease. Besides, from the contrariety of its parts, which we have seen to exist, we will naturally expect that the cornea is liable to various affections, and that, under the head of corneitis, we shall find several aspects of disease. To each of these, in this paper, it is not my intention to refer: I shall only briefly notice a few of the most common lesions to which the cornea is liable; and here I may premise that my statements shall be made from my own experience alone, derived from the treatment of a very large



number of cases at the Belfast Ophthalmic Institution, during the last twelve years; and, while I most distinctly disclaim all desire to undervalue the opinions of others, I do not intend to refer to any authors who have written on the subject, but merely to express my own views, and to state the means which I have found most efficacious in treating the affections I am now about to submit to the notice of the profession.

The first disease of the cornea, to which I shall refer, is chronic thickening of its epithelial layer; this affection is usually the result of conjunctival inflammation, more particularly that which attends purulent ophthalmia; it is frequently accompanied by what is termed "granular lid"—a hypertrophied state of the conjunctiva lining the eyelids—although we may sometimes see it as a simple injected condition of the vessels in and beneath the epithelium corneæ. The affection in question also results from inflammation of the conjunctiva in a patient of a strumous habit, and is then very generally associated not only with a thickened condition of the conjunctiva, but by disease of the edges of the eyelids also, including the orifices of the Meibomian glands, and the hair follicles of the cilia. In fact, in all cases where the conjunctiva becomes engaged in chronic inflammation, and the disease remains for some time unchecked, the cornea is very likely to participate in the morbid action, by having its epithelial layer, and, perhaps, its anterior elastic lamina, sooner or later involved. No matter how the affection of the epithelial layer has arisen, it produces the same injury, at least temporarily, to sight, and this it does by simply, in the first stage, interposing an opaque barrier to the transmission of light; then, after some time, the opacity likely spreads to the anterior elastic laminæ, as may be observed in a case of some standing, by scraping off a small portion of the epithelium, when the elastic lamina will be seen muddy or slightly milky in its appearance. Sometimes the epithelial layer becomes thickened and injected; to this state the name of "pannus" has been given; this usually, I may say always, occurs either as the immediate result of active inflammation of the part, or is superadded inflammation to an already thickened and injected condition of the layer. The treatment which I have found most successful in these cases I shall now relate. My first care is to ascertain the exciting cause of the corneal affection; if it depend upon a hypertrophied state of the palpebral conjunctiva, I direct my attention first to the cure of that condition, for, so long as the rough, hard surface of the eyelid is pressed and continues to rub against the front of the cornea, we must have the epithelial cover vascular, and day

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after day becoming more opaque, just as in entropium the same results occur from the irritation of the inverted cilia; in fact, this vascular action in the part is seemingly set up as a protective measure; for the patient, in the early stage of either "granular lid" or entropium, suffers great torment from the presence of what must be regarded as a foreign body, but, after a time, the thickened layer becomes less sensitive, until the pain is almost disregarded; but then, along with this lessened sensibility, sight has become more and still more dimmed. But, to return,—when I find that the corneal affection is accompanied by a hypertrophied state of the conjunctiva, I adapt my treatment accordingly; as a local application I use sulphate of copper; I take a piece, and having ground it quite smooth, I affix it to a quill; with this I freely rub the inside of the eyelid or lids that may be implicated, applying it to the part for fifteen or twenty seconds; this I repeat every second or third day; at the same time I order the ointment of the red oxide of mercury, made very fine and smooth, to be introduced within the eyelids every night. I occasionally also advise the use of a collyrium, composed of the sulphate of alum or zinc, four grains to the ounce of water, along with the sedative liquor of opium, half a drachm to the ounce. Of course I do not confide in applications alone, as I hold that in all such diseases we must endeavour to correct the vitiated state of the system upon which, in the great majority of cases, the local affection depends. Now as the disease under consideration is one of an asthenic character, I never think of depletion unless in those cases where active inflammation sets in, and then three leeches to the inner canthus of the eye every night, for two or three in succession, will suffice. Alteratives and tonics are the medicines I find most efficacious; of the former, mercury and iodine are my favourites; of course I use others occasionally; of the latter, the preparations of iron stand highest in my estimation. But it must ever be remembered that the regimen, clothing, sleeping apartments, exercise, in fact, hygienic medicine and sanitary requirements, cannot be overlooked; nay, these are most essential, and many cases, no doubt, fail to be cured, in consequence of these seemingly simple means being lightly esteemed. The eye-douche, in some of these cases, I have found of great service. Mr. Walton's douche is a very simple, cheap apparatus, and with it a stream of cold, warm, or medicated water, can be directed full on the affected part, without causing any pain. We must not expect, in the cases under consideration, to effect a very speedy cure, for, as the disease is one of morbid action, producing a greater or less change of structure, time,

of course, will be required along with the best chosen remedies to restore the altered structure to its normal condition. But I am pretty certain that a steady perseverance in the treatment —or the like—which I have suggested, will eventually remove the complaint, unless where the disease has been of long standing, causing irreparable change of tissue, or is so complicated with some other disease as not to afford much prospect of success: these cases, however, are easily recognised.

The next disease of the cornea to which I shall beg attention is ulceration of any or all of its component structures. On the margin, and occasionally scattered over the surface of the cornea, we frequently see points of ulceration of the tissue we have just had under consideration—ulcers, in fact, of the conjunctival layer; these are usually attended with many large tortuous vessels running into their edges, and present a dirty irregular appearance, deep, seemingly, from the thickening of the tissue around them. Now, although they present a very alarming appearance, enough to frighten the inexperienced into the use of most active measures, they are in truth very tractable, and readily yield to one or two touches of the solid nitrate of silver, the application of a simple astringent, sedative collyrium, and the internal administration of one or two corrective purgative doses of rhubarb and carbonate of soda, combined with some tonic. But when the ulceration extends deeper, the case becomes materially altered; and here I may observe, that the deeper in the structures of the cornea any ulcer proceeds, by so much is the danger to the integrity of sight increased. Ulceration very frequently is seen to extend through the epithelial tissue and attack the fine dense structure of the anterior elastic lamina; this ulcer presents an even surface on its bottom, with a sharp, well-defined edge; from the thickening of the epithelial layer the ulcer looks deeper than it really is, for it is certain that the real depth must be trifling, as the membrane in which it is situated is so very thin. If this ulcer be seen in its early stage, it can be readily arrested in the majority of cases, and, when healed, leaves no trace behind, save occasionally a slightly hollowed surface, but which is quite as transparent as the adjoining tissue. I believe I was among the first to point out this fact, that if ulceration of the cornea do not pass through the anterior elastic lamina into the lamellated tissues, the reparative process will not leave any trace of opacity; but if the laminated structure have been affected, the healing will present a cicatrix of greater or less density in proportion to the depth and extent of the ulceration. I was first led to the foregoing inference, from observing the healing

of the injuries of the anterior elastic lamina after a foreign body had been "gouged" out of its structure, and seeing that no trace of the hurt could be detected after the lapse of a few weeks, or, at most, months; and I believe the fact is now admitted by all who have taken the trouble to make the observation. It is an admirable provision, for if this part of the cornea, which is so liable to injury, were rendered opaque thereby, many eyes must be annually materially impaired among the working classes. Sometimes I have seen the ulceration of this tissue commence at a point of its coalescence with the sclerotic, and extend around a large portion of its margin, leaving the part standing out and detached, the lamellated structure being laid bare for a line or more in breadth, yet the part has healed up without leaving a trace of the lesion. When the ulceration reaches the lamellated structure, the bottom of the sore will present a very irregular surface, until healing commences, when the bottom of the ulcer will become clear and level, and the edges will have a less sharpened appearance. It does not follow that because the ulcer has exhibited this uneven surface it must have an opaque cicatrix, for it may be that the ulceration has only just reached the lamellated surface where it becomes united to the anterior elastic lamina; if so, the probability is, that the healing process may be accomplished by means of transparent tissue. Tonics, locally and internally, are the means I use. I apply the nitrate of silver by impregnating the fine point of a camel-hair pencil with a saturated solution of the salt, and then gently touching the ulcerated surface; this I repeat daily, or every second day, according to circumstances. One effect soon observed is the diminution of pain in the affected part, for as soon as the smarting of the application has passed off—in some half-hour in most cases—the acute aching sensation which had been felt in the eye and brow is greatly diminished, and the patient will enjoy—probably for the first time for several nights—refreshing repose. In the dispensary I usually give Dover's powder, five to ten grains, or according to age, with two or three of calomel every night, and ten grains of powdered Peruvian bark, with ten of carbonate of soda, twice or thrice daily; frequently, also, I give the sulphate, or the ammonio-chloride of iron, along with the foregoing. Now these cases should be anxiously watched, for if the ulceration be not arrested, it gets into the areolar structure of the lamellated layers, and then likely runs a rapid and injurious course. Inflammation spreads to its texture, and lymph is either quickly deposited in its tubular spaces, or sloughing ensues; in the one case the sight is greatly endangered, in the

other, almost certainly lost. Sometimes pus forms in the lamellated structure—a very dangerous result of the inflammation. Where the disease has reached the lamellated structure, and the inflammatory action becomes more active, threatening the changes which I have specified, local depletion becomes necessary; yet still the tonic treatment also should not be abandoned; of the happy results following a tonic and stimulating treatment, along with local depletion, I have had many examples; and, apparently anomalous as it may seem, I have repeatedly found leeching and the local application of nitrate of silver of the greatest utility; but then the fact is, that nitrate of silver is not an irritant, as supposed by many, but is a direct sedative, allaying the exalted sensibility of the part,—and of this the eye affords beautiful examples in the inflammations of its superficial structures. The same, I may add, is seen in simple phlegmon and erysipelas of other parts. When the cornea shows the least tendency to sloughing, I cannot too earnestly caution against the use of mercury, so, at least, as to produce any of its specific effects. It may be advantageously given, however, in some cases, in tonic doses, the eighth or twelfth of a grain of bichloride combined with decoction of bark, but it must be watched. I believe, indeed, that in most cases, so long as the appearance of sloughing remains, the mercury had better be withheld, and bark, soda, and iron, be substituted. There cannot be a question, however, that mercury, especially its bichloride, exerts a most powerful remedial agency in removing many of the opacities of the cornea which remain after the inflammatory action has ceased. Of this I shall have occasion to speak presently. Nearly a century ago Dr. Meade pointed out the efficiency, especially of the bichloride, of mercury in removing certain opacities of the cornea. If matter form within the layers of the lamellated cornea, it must not be interfered with manually, but be left to be removed by absorption, or by finding its way to the surface, or into the chamber of the aqueous humour; any attempt at giving exit to it will only excite fresh inflammation, and the pus cannot be evacuated by the knife. One thing is certain, that when suppuration has taken place in the areolar tissue of the lamellated structure of the cornea, the integrity of vision is greatly endangered; for, at the least, the reparative process will leave an indelible opacity by the formation of opaque, white, fibrous tissue, and if this be central and extensive, the sight will be, as it were, blotted out. Of this, one sees many examples among the inmates of the various asylums for the blind. In these institutions, in the great majority of cases, opacity of the cornea will be found to be the cause of

blindness, and that has been produced by purulent, or gonorrhœal, or variolous inflammation, neglected, or improperly treated; in all of these the nitrate of silver, early, freely, and judiciously applied, would likely have arrested the destruction.

In purulent and gonorrhœal inflammation, every one conversant with ophthalmic practice, and who is not morally blind to truth, is aware that the nitrate is all powerful in arresting their destructive tendency. Fortunately, we are not often called on to treat variolous ophthalmia; but let me assure my readers, that eyes need not generally be lost when attacked by the variolous pustule. The nitrate of silver, freely applied to the conjunctiva, when, in the patient labouring under small-pox, it is attacked with inflammation, will not only prevent the formation of pustules, but will arrest the development of any that may have formed; and the profession is aware that, in these cases, the usual result was, that from the pustules forming upon the cornea, the inflammation extended through the anterior elastic lamina, or completely destroyed all the corneal texture. In the former instance, the loss of sight arose from the formation of a white, firm cicatrix—in fact, an indelible leucoma, in the latter, from the collapse of the entire globe of the eye. I may remark, that I lately felt great gratification in reading the report of two cases of purulent or gonorrhœal ophthalmia—it matters not which—as they are very much alike, differing principally in degree of severity. These cases are reported from a lecture delivered in one of the London hospitals by a distinguished surgeon, who has been a great advocate for active depletion in all acute ophthalmias. In one of the cases, his old and favourite practice of depletion, *ad deliquium*, was vigorously pursued, along with mercurialization: the eyes were lost! In the other case, it is stated that a very different treatment was pursued, and with more successful results! Now, while this gentleman has been tardy to admit that the practice he inculcated and pursued for many years is and has been wrong, still it is gratifying to perceive that he is likely to be converted in his declining years, and that he admits that all ophthalmic inflammations cannot be cured by active depletion! I trust, indeed, that he will live to confess and insist that the majority of superficial inflammations of the eye are best treated by a very opposite line of practice.

In that form of inflammation of the conjunctival corneal layer named "pannus," and where there is not granular lid as the exciting cause, a great variety of remedies have been suggested—some of a character which we are not likely to try in this country; for instance, inoculation of the eye with gonor-

rhœal matter. We are satisfied with less dangerous and less heroic measures, and usually find that local and general tonics, perseveringly employed, along with small doses of the bichloride of mercury, will remove the disease. The eye-douche, used with cold, warm, or medicated water, will often contribute much to the restoration of the eye to a healthy condition. In some very bad cases I have tried a new method, namely, lifting up small portions of the conjunctiva all around the margin of the cornea in loops, and passing a very fine ligature beneath each portion, tying the several points, cutting them off quite close, and thus destroying the series of enlarged vessels which supply the thickened epithelial tissue. This operation, if chloroform be not exhibited, requires a patient with great powers of endurance. Of its success I can now speak satisfactorily, as, in two cases I lately treated by ligature, the progress has been rapid and gratifying. In this treatment, if fresh inflammation be excited to an *over* degree, it will be necessary to apply leeches and other antiphlogistic measures. In speaking of ulceration of the cornea, I omitted to state that frequently the ulceration extends through all of its tissues until it becomes a penetrating ulcer: all the structure has then been ulcerated through, and the iris falls into the opening; or the posterior elastic lamina still remains, this yields to the pressure of the aqueous humour, and bulges into the aperture, and is likely followed by the edge of the iris.

Now, if this penetrating ulcer be situated near the centre of the cornea, the treatment I adopt is quite different from that which I follow if the opening be near its circumference. In the first instance, I drop a solution of sulphate of atropia—six grains to the ounce of water—upon the conjunctiva, and smear extract of belladonna upon the eyebrows; after some fifteen or twenty minutes, I endeavour, with a fine probe, to free the margin of the iris from the aperture, and thus, promoting dilatation of the pupil, I prevent the occurrence of synechia anterior, and a likely consequent closure of the pupil; but, in the other instance, I am satisfied to free the iris from the ulcerated opening without applying any belladonna. For, in the first instance, I wish to draw away the margin of the pupil from the opening; and, in the other, by exposing the eye to a strong light, and thus contracting the pupil, prevent it falling into the aperture. In either case I touch the ulcer with a fine point of solid nitrate of silver, or with a camel-hair pencil charged with a saturated solution of that salt. Some authors condemn the use of the nitrate of silver in these cases: I can only say, that I have followed the practice I state in a

very large number of cases, and with the best results: in fact, in these instances I consider the nitrate is invaluable in preventing further ulcerative progress, in promoting new action, and in hastening the reparative process. Of course, the practice I here recommend must be adopted *at once:* for if the iris have been in contact with the ulcer for a period of a few hours, adhesive inflammation will have glued the one to the other, and any attempt then to separate the parts can only be productive of mischief.

I shall now briefly refer to a peculiar inflammation of the cornea, usually occurring in persons of a strumous habit, and about the age of puberty, sometimes in childhood. In this disease, without much previous vascularity of the conjunctiva, but with the well-marked areola of vessels, which in all deep-seated inflammations of the cornea or iris surrounds the corneal margin, the cornea quite suddenly becomes milky in hue, while the epithelial tissue is nearly unaffected, and the anterior elastic lamina retains its polish and seems clear; in fact, the opacity is evidently in the lamellated structure. Now, whether this depends upon the effusion of fluid into the tubular spaces of the cornea, or is merely a derangement of the elementary parts of its structure, is not quite clear: I think it is owing to the effusion of some fluid. It is true, indeed, that a perfectly fresh and transparent cornea can be rendered opaque by pressure, but it regains its brilliancy the moment the pressure is removed: this opacity depends upon the disarrangement of its integral particles; but, in disease, although the opacity appears very rapidly, and, as I have stated, without much previous signs of inflammation, its removal is a very tedious matter, not being usually effected under many weeks, sometimes several months. Besides, in some very bad cases which I have seen, the corneal structure was evidently swollen, approaching slightly to the appearance of the cornea in an eye that had been macerated in water, and had imbibed some of the fluid by endosmose. This is probably from the effusion of colourless serum, or from an increase in the exhalation which usually moistens the areolar tissue of the lamellated structure. There cannot be any question that lymph, also, is sometimes effused; and I have occasionally seen blood filling up the tubular spaces of the cornea. One peculiarity about this disease is, that there is often great intolerance of sight, while the cornea is so opaque that it presents more the appearance of ground flint glass, with the polished surface in front, than any other material. The opacity is so great that the person can only distinguish light. This intolerance of light is pathogno-

monic of ophthalmia occurring in strumous habits, and is very observable in scrofulous children. Every one is aware of the dread photophobia which exists in some of these cases, and where, upon examination, no structure of the eye can be said to be inflamed, the conjunctiva, in many cases, being almost without vascularity. The exalted sensibility which is present without inflammation, the contracted pupil, the gush of tears, and the sneezing, which are observed when the eye is exposed to a strong light, constitute a nice question in pathology and physiology, which, however interesting, the scope and tenor of my paper will not permit me to discuss.

I have remarked, that in this species of corneitis there is not, at first, any sign of active inflammation, yet there is no doubt that the corneal vessels are injected, in the first instance, with colourless blood, from which the effused fluid proceeds, and, if the disease be not arrested, very marked signs of inflammatory action soon arise, such as conjunctival injection, a deeper and darker zone around the cornea, spots of deeper opacity scattered through its substance, which I take to be coagulable lymph; and, finally, red vessels may be seen passing behind the anterior elastic lamina.

This disease very rarely attacks both corneæ at the same time, but it is quite certain that within some weeks or months the second eye will be attacked, and that, frequently, while the first is under treatment: in some hundreds of cases I have never found this observation fail to be realized! In fact, so convinced am I now that the second eye must take on the diseased action, that I invariably state to my patients what they must expect. In some cases, I had begun to doubt at the end of six or eight months; yet, after the lapse of that time, the prediction has been verified. It is an anomaly in eye disease: the why and wherefore I do not pretend to explain.

With regard to treatment, this is one of the few forms of ophthalmia in which I deplete freely—locally, I mean. Four or six leeches should be applied to the eye every, or at least every second, day; for although there may not be signs of active inflammation, for the reasons I have already assigned, I find it absolutely necessary to stop *in limine*, if possible, the morbid action. I will not say that otherwise the eye may be lost, but I feel assured it is the only way to insure anything like a speedy and satisfactory cure. I always, in these cases, exhibit mercury so as to gently affect the system, combining it with either Dover's powder, or some James' powder, or the tartrate of antimony along with quina. When the intolerance of

light has diminished, the vascular zone lessened, the conjunctiva has become less vascular, and the opacity of cornea is not so dense, I consider that the first, or acute stage, if you will, has passed away, and I commence to give the iodide or bromide of potassium, still, however, exhibiting *tonic* doses of the bichloride of mercury. I am not sure that blistering is of great use, still, I generally order one to the temple of the side affected, and keep up the issue with Albespeyrre's paper, No. 2. When all trace of inflammatory action has disappeared, and we have only the opacity—but lessened, of course—remaining, the ointment of the red oxide of mercury may be put within the eyelids every night, and a solution of the iodide of potassium, containing from 10 to 20 grains to the ounce of water, may be dropped on the conjunctiva morning and midday: and here I may remark, that this solution, used thus daily for some weeks, I have seen remove the olive-coloured stains which had been produced in the eye by an improper and injudiciously continued application of nitrate of silver drops! If, in the affection under consideration, the lower eyelid exhibits dusky-coloured and enlarged vessels in its conjunctival lining, as it often will, this surface should be lightly touched with smooth nitrate of silver, or rubbed with a fine piece of sulphate of copper, so as to restore tone to the dilated and atonic veins. The eye-douche will here, also, be found very serviceable in promoting a similar end; in fact, tonics, both internally and externally, are indispensable essentials in the treatment of this affection when it has reached the chronic stage. The preparations and compounds of iron and iodine are the best tonics for internal exhibition. With regard to the influence of mercury in this species of corneal disease, I beg to say that I have a very decided and favourable opinion. Some persons may suppose that this drug is not admissible in an affection so frequently, perhaps always, occurring in a strumous habit; and, doubtless, the objection would be valid, were it requisite to give that metal in large doses, so as specifically to affect the system; but I do not believe that, in the manner in which I exhibit it, the smallest evil can ensue; on the contrary, my experience is, that, in minute doses, mercury is an active and very safe tonic, and certainly most effective in removing the opacity of structure which remains after the active stage of the complaint under consideration has passed by.

The only other affection of the cornea to which I shall in this paper allude, is inflammation of the posterior elastic lamina—the membrane of Desmares. This part is less frequently

found the seat of disease than the more superficial and lamellated structure: here, as in all corneal inflammations, a vascular zone surrounds the margin of the cornea; in this instance the zone is of a deep dusky hue, while the general conjunctival tissue is usually but slightly affected; there is a deep-seated opacity, frequently of a dirty yellowish colour, and always interspersed with small spots presenting a denser opacity than that in the tunic generally. In this affection, the iris and ciliary body may soon become implicated in the inflammatory action, when the anterior chamber of the aqueous humour exhibits a muddy appearance, the pupil is contracted and irregular in its margin, and the vascular zone extends very much in its breadth, while the situation corresponding to the attachment of the ciliary body, assumes a bluish tinge, such as we see in a chronic congested condition of the choroid coat; indeed, in cases where the inflammation runs a rapid course, and is unchecked in its progress, the choroid tissue itself becomes affected, and it is obvious that such is most likely to ensue from the continuity of structure that exists in the membranes under consideration. Some of the results of an aggravated attack of these structures, which I have seen, were, a permanently irregular pupil, a discoloured iris, and a constricted appearance of the eye immediately around the margin of the cornea, arising from the contraction which had taken place in the tissues of the ciliary body, while a diminution or loss of the adjusting powers of the eye, with a consequent failure of vision, naturally ensued. I cannot say that I have seen any permanent opacity of the corneal structure remain after this peculiar inflammation; for although the tissue may have presented a very dense opacity of a dusky hue, along with the speckled granular appearance to which I have referred, I have always seen it resume its transparency after the inflammation had entirely passed away.

In the treatment of this disease I consider it absolutely necessary to exhibit mercury so as rapidly and certainly to affect the system, and I think the action of the mercury should be sensibly kept up until the inflammatory condition has yielded, and the tissues begin to resume their natural appearance. With the mercury I usually combine tartar emetic and opium. From the nature of the structures affected, and the rapidity with which they exude lymph, I think it will be readily conceded that mercury is *the* essential in the treatment of this complaint, and that, without it, structural change, likely of very serious moment to vision, would probably arise. I cannot say that I have found active local depletion of any very great use as a curative measure. Should, however, the attack be attended with much supra-orbital pain, or a sense of heat and fulness

in the eye with vascular injection of the conjunctiva, a few leeches may with great propriety be applied above the brow and over the course of the angular vein. In the chronic stage counter-irritation on the temple will be found very useful. Extract of belladonna, applied freely over the eyebrow, as in ordinary iritis, I always order during the progress of the malady, and I may say that I deem its constant application of no small importance, both in allaying the irritation that usually exists, and in keeping the pupil dilated.

It must not be supposed that, in speaking of the inflammation of the several tissues of the cornea, I mean to convey the idea that these are always thus separately engaged in disease from the outset. On the contrary, I have in numerous instances seen all parts of the structure apparently attacked with inflammation from the first, though it is very difficult to determine whether the posterior elastic lamina always participated in these attacks, because, when the more superficial layers become engaged, and are of course opaque, it is impossible to ascertain the condition of that lamina. The obscurity of its state, however, need not be regarded as of any great practical moment, as the treatment should, in every instance, be such as to secure for the deep portion of the cornea, and its associated structures, remedial agencies that are known to arrest the morbid action of these parts.

I have already stated, that I have observed several cases of corneal inflammation where the entire structure was apparently affected at once. The conjunctival layer in these cases was deeply injected in irregular patches near the margin, the enlarged vessels giving these patches a deep red hue; behind this membrane the anterior elastic lamina could be observed semi-opaque, with the appearance of the polished side of ground glass, and within it several points of denser opacity more deeply seated, caused by deposition of lymph in the lamellated structure of the cornea proper; in some instances, a few days after the commencement of the attack, I have seen tortuous vessels, carrying red blood, pass behind the elastic lamina and enter those dense spots in the lamellated tissue. Here, then, there was evidence of three of the layers of the cornea being attacked, and there is every reason to suppose that the fourth, or posterior elastic lamina, was not free. In all of these instances, I may remark, that there was a broad vascular zone, of a deep hue, around the cornea, and for about two lines out over the sclerotic, with considerable conjunctival injection; the former of which signs led me to suppose that the posterior elastic lamina, with the iris and ciliary body, was more or less affected.

There cannot be a question but that, where the structure of the cornea is so seriously implicated, there is great danger to the integrity of the eye from permanent opacities remaining within its corneal substance, resulting from the repair of small suppurated points, or from organized lymph deposits; or synechia anterior may take place in consequence of the union of the margin of the iris to an ulcer in the posterior elastic lamina, formed by the penetration of pus into the anterior chamber, and thus the pupil may be nearly or entirely closed.

Seeing, then, that any or all of these results may follow inflammation of the entire corneal structure, it is clear that active measures are called for in its treatment; but while I say so, I do not mean that it should be inferred I would either recommend or pursue the extravagant depletion which I have seen practised some twenty years ago. But I would certainly advise active local depletion, by the application of six or eight leeches over the brow, or near the outer or inner canthus of the affected eye, every, or every second, day; as to opening the temporal artery, or the more needlessly painful operation of cupping the temples, I would never dream of such. Besides the leeching, I always order small doses of calomel combined with minute portions of tartar emetic, and moderate ones of opium, or give the calomel along with Dover's powder. As a local application I usually direct a collyrium, having astringent and sedative qualities, to be freely used either cold or warm, as may seem most agreeable to the feelings of the patient; remembering, however, that in the winter season cold applications are very likely to cause an increase of pain in the brow. While using the collyrium, I always advise the application of extract of belladonna, as I have already mentioned, or add the expressed juice of belladonna to the collyrium.

When, under this treatment, steadily pursued, the active stage of the inflammation has passed away, I content myself by exhibiting the bichloride of mercury, in the way I have already pointed out, and by applying an issue blister to the temple. Being satisfied that time is the great element in the restoration of the organ, I am not sure that any local application will much hasten the cure, though I have used the solution of the iodide of potassium, dropped daily on the conjunctiva, with seeming advantage. Should I find thickened vessels in the palpebral conjunctiva, keeping up superficial irritation, I would apply the nitrate of silver, or sulphate of copper, as I have already described, with the view of restoring healthy action in the relaxed and atonic blood-vessels of the mucous

membrane, and would order the eye-douche of cold water with a like intention.

I have now, I believe, glanced at the nature and treatment of the most common and important affections to which the cornea is liable; I have given a brief outline of their several distinguishing characteristics, and I have endeavoured to convey to my readers concise ideas of the plan of treatment which I adopt in each instance, and which I have found to be most successful in practice. My views, in some of what I have expressed, may differ from those of others: I have only to say that I do not put them forward with any view of depreciating the opinions of authors, or in any spirit of controversy, but merely to add the result of my own experience to what has already been recorded on the subject; and in doing so I trust that I have stated my opinions candidly, but without any assumption or attempt at dictation; and as I hold it is the duty of every one in the profession to add, if it be only his mite, to the stores of knowledge, I occasionally take the liberty of throwing in some humble contributions, always feeling satisfied that they will be received, at least, in a tolerant and kindly spirit by my brethren, to whom they are addressed.

Art. VII.—*Case in which the whole of one Lower Extremity and the side of the Pelvis were deficient at Birth, owing to Cohesion of the Placenta with the Body of the Child.* By W. F. Montgomery, A. M., M. D., Professor of Midwifery, &c., to the King and Queen's College of Physicians in Ireland.

In the Number of this Journal for last May, I published an account of a case of fœtal malformation, to which the one now to be communicated is so strikingly similar in some of its most remarkable peculiarities, that I have prefixed to the present paper the title of the former. There is, however, more than one point of difference; but especially one of a very singular and important character, which will be dwelt on towards the close of this account.

On the 19th April, 1856, Dr. Shannon kindly placed in my hands, for examination, a seven months' child, born, under his own observation, on the previous day, and much malformed, owing to cohesion of the placenta with its body at the perineal region.

The mother was twenty-three years of age, had always been healthy, and had previously borne one child, which was quite well formed; her husband was not a relative by consan-

guinity; she had not met with any accident or fright during her pregnancy; the liquor amnii was discharged forty-eight hours before the establishment of labour, when the abdominal viscera of the child were found in the vagina; the delivery was safely accomplished, and there was no hemorrhage.

The right lower extremity was entirely absent; the left present, but abnormal; the thigh was drawn up, and bent on the body at nearly a right angle, while the leg was flexed close along the thigh, and the foot very much bent upwards, with the heel sunk in a pouch of integument lying close upon the junction of the placenta with the body of the child.

In the former case, owing to the kind of presentation, and the consequent necessity for manual interference to effect the delivery, the connexion of the placenta with the child was severed, and the relations of other parts were displaced; but, in the present instance, the child was easily expelled by the natural action, and the placenta and other parts were found undisturbed.

I am indebted to Mr. Connor, Curator of the Anatomical Museum, Trinity College, for a careful examination and sub-

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joined account of this specimen, as well as for an accurate cast of it, in wax, and a beautifully prepared skeleton.

The head, upper extremities, and thorax, were normal, but the right side of latter more arched than the left; the child was rather handsome; the spinal column was well developed, and the foramina normal; ilio-sacral symphysis, on both sides, perfect; the coccyx was nearly half an inch in length, and inclined downwards, backwards, and to the left side; in the early stages of fœtal life, this tail-like form is very apparent; the right ilium was normal in all its proportions, except its upper and anterior crest; there was no trace of the right ischium, or pubes; on the left side all was normal, except that the obturator foramen was not distinct, there being no obturator vessels or nerve; it was buried in a mass of muscle, &c. In the last skeleton, there was a small portion of the right pubes attached to the left; in this, there was not a vestige—it was a smooth surface; above, and a little to the left, are the remains of the left labium; when we see this, and the orifice of the rectum pulled to the right side of the mesial line, we may suppose that the adhesion first implicated the right side of the perineum; the femur, tibia, and fibula of the left limb were perfect; the patella was present, and a particularly strong fascia covered the knee-joint, and the outer condyle was enlarged; the ankle-joint and os calcis normal, as were also the great toe, the last, and also the second last; the two latter, and a trace of the third last, were in the heel-pouch; no vestige at all of the second toe, or the central bones of the foot, which was cleft at that part into the great toe, which is seen in the sketch; the two last were entirely hid from view in the heel-pouch.

The union of the placenta to the child was at the perineum, where the connexion was very vascular, by numerous vessels, one being very large (see Figure), which appears to have performed the function of the umbilical vein, and to have carried the renewed blood from the placenta to the child. But as there was no large vessel to carry it direct to the liver, as in the normal arrangement, it was carried to that viscus through the veins of the abdominal viscera; from the liver, the current of blood was carried on in the usual way till it arrived, on its return, at the end of the abdominal aorta; it then flowed back to the placenta through the right hypogastric artery, which was much dilated, and of a uniform caliber with the descending aorta. The left hypogastric artery was completely obliterated by the fusion of the parts that join the placenta, just at the left side of the symphysis pubis; but from that point the left umbilical artery can be traced from a large *cul de sac* into the placenta, the right umbilical artery being continuous

with the right hypogastric and aorta. There was no trace of either iliac artery or femoral of left side; the left hip, thigh, and foot being supplied by the great vascularity between them and the adherent placenta.

The nerves of the sympathetic system were particularly well developed; the sacral nerves of the right side were present, but passed as mere threads through the sacral foramina; the nervous system of the left side was normal, and the great sciatic well developed.

All the viscera above the diaphragm were normal, as were also the spleen and liver; the latter, however, being supplied from the mother through the portal system, which performed the function of the umbilical vein. The stomach and intestinal canal were normal; the cæcum long and funnel-shaped, the anal orifice ending in the 'heel pouch.' The kidneys were normal and large, the left largest; the suprarenal capsules very large, even for the age of the child (like the kidney of the crocodile); the left suprarenal capsule was unravelled, and of a very long oval form, which was caused by its being on the stretch, in consequence of the peculiar connexion of the child with the placenta; the ureters were very much dilated, being larger in their caliber than a swan's quill, and ending in a very capacious pouch, evidently formed of a union of the vagina, uterus, and bladder; the orifice of this bladder-pouch opened into the heel pouch, near the rectum; on the outer wall of the right side of the bladder-pouch, the enlarged hypogastric artery ran, and entered the placenta nearly at the same point as, in the normal arrangement, it would have entered the umbilical vein.

The vagina and uterus were completely fused with the bladder, no trace of them, or of the Fallopian tube, or ovary of the left side; they were fused into the general mass; for it was at this point that the general centralization or adhesion took place; but on the right side the Fallopian tube was distinctly traceable to the bladder-pouch, on the right outer wall of which, it was lost, or fused; the ovary and fimbriæ connected with this right Fallopian tube were very distinct, but adherent very high up, close to the kidney, where, in the early periods of fœtal life, they are found to lie; the tubes closely resembling the cornua uteri of some of the lower animals.

The heel-pouch is lined with cuticle, and in it are contained the last, second last, and a rudiment of the middle toe; the orifice of the rectum, and the orifice of the bladder-pouch, also opened into the heel-pouch; there was no trace of vaginal orifice, but the remains of the left labium are seen at the upper

and outer border of the heel-pouch, to the left side, and in the shape of a crescentic fold; this pouch was full of the same kind of sebaceous matter as that which thickly covered the skin of the child.

The line of demarcation between the skin and the membrane covering the liver and intestines was abrupt and well-defined, and of a slight purplish hue; the epithelial layer at the edge was distinct, and readily peeled off, this boundary passed from the right lumbar region round to the heel, which it just touched, passed under the heel-pouch, touched the coccyx, and so round to the right lumbar region; the heel-pouch, and the small orifice over the sacrum, were on the cuticular side of this line.

The liver, intestines, and obliterated left hypogastric artery, and the right enlarged pervious hypogastric artery, were on the placental side of this line; the foot seems to have become adherent to the hernial sac, just where the umbilical cord, when existing, makes its exit from the placenta.

The amniotic envelope was distinctly traceable behind the line of demarcation, up and behind the integuments of the epigastrium, to the serous coat of the diaphragm and abdominal viscera.

The nails were but feebly developed; the hair very fine, long, close, and fair; the membrana pupillaris was visible.

One of the most curious facts connected with this case is that now to be noticed. In the integuments, just over the middle of the sacrum, and about half an inch above the line of demarcation between the skin and amniotic membrane, was a very small, perfectly well-defined hole, with smooth edges, which just admitted a large bristle to pass through it into the heel-pouch, along a canal almost filled with sebaceous matter, which passed along the back of the thigh; this little aperture had all the appearance of being artificially made, but was unquestionably of intra-uterine origin, and is deserving of especial notice in a medico-legal point of view, as, under other circumstances, it might readily be mistaken for a hole intentionally made with a pointed instrument for the purpose of destroying the child's life, by passing a long needle up into the spinal marrow.

Several years ago a woman was executed in this city for the murder of her infant by a means closely resembling that just alluded to; she passed a long darning needle through the upper part of the spinal marrow into the brain, where it was found; she confessed her guilt, and further declared, that the idea of injuring her child had never entered her mind, until she

witnessed the execution of a woman who had destroyed her infant by the same means.

A case related in Paris and Foublanque's "Medical Jurisprudence"[a], is so curiously illustrative of the above, and of the necessity of attending to such peculiarities of structure, that I shall subjoin a brief account of it.

At the Devon assizes, in March, 1800, Thomas Bowerman was inflicted for the murder of Mary Gollop when fourteen years of age; more than a month before the trial, his daughter, Elizabeth, twelve years of age, stated, that she saw him kill Mary Gollop by pushing an awl into her head; and pointed out the spot, near the ear, where the perforation had been made. In consequence of this statement, in February, 1800, two years and a half after her death, the body of Mary Gollop was disinterred, and an inquest held. The skull was examined, and a small hole, of the size of an awl, was found near the ear, just where Elizabeth Bowerman had pointed out; the coroner's jury, in consequence, returned a verdict of wilful murder against the prisoner. The case attracted the attention of Mr. Sheldon, who, after examining the skull, declared his opinion that the hole, supposed to have been made by an awl, was a natural perforation for the passage of a vein; and pointed out the fact, that there was a sort of enamel round it which could not have been there if it had been made by force. He, moreover, produced a dozen or more human skulls, having in them similar perforations, variously situated, and presenting a similar appearance of polish round their edge. The consequence was that the grand jury ignored the bill.

Art. VIII.—*Observations on Pericarditis.* By Robert Law, M. D., Professor of the Institutes of Medicine in the School of Physic in Ireland.

Pericarditis ever has been, and ever must be, a subject of deep interest. The pathological conditions of a structure so intimately connected with so important an organ as the heart must ever commend themselves to our most anxious attention, and especially when the subject is one of extreme difficulty. For, although the diagnosis of pericarditis is less obscure now than it was formerly,—although it cannot now be said that there is not a single characteristic sign to denote its presence—and, thanks to auscultation and percussion, we are not left to vague

[a] Vol. iii. p. 80.

conjecture, or to infer *par voie d'exclusion*, that, because the disease is nothing else, it is, therefore, likely to be pericarditis, —with all that these modern helps have done towards rescuing this important disease from the difficulty and obscurity that enveloped it from its origin to its termination, of which it might be truly said, that it rose in obscurity and set in obscurity:—we have still much to learn about it before our knowledge is as complete as the importance of the subject demands. It is a singular fact, connected with diseases more or less intimately related to the central organ of the circulation, that they are amongst the most obscure and difficult of detection of all diseases; and that, while we have such confidence in the heart that it will not allow anything to be seriously amiss in the system without apprizing us of it—while we almost constitute it a *custos salutis*, a kind of detective—although it may fulfil these functions in reference to the affections of other organs and systems, and discover on them—still we find it exercises a most remarkable reserve on its own affections.

How often will unexpected death reveal an aneurism of the aorta whose existence was never even suspected during life! And how often are we indebted to the derangement the aneurismal tumour produces in the functions of other organs, for its discovery! How often has dyspnœa or dysphagia been the earliest announcement of this formidable disease, while the heart has maintained the most unruffled composure! Pericarditis also, not long since, shared in this obscurity. But we may be told that auscultation and percussion have produced for this disease a certainty of diagnosis that leaves little to be desired. I willingly admit that much has been achieved by these valuable diagnostic helps; still, much remains yet to be done before the requirements of practical medicine are fully satisfied. I contend for the frequency of the disease, and for its obscurity, on the grounds of the frequency with which we meet with appearances of inflammation of the pericardium, even to the extent of producing complete obliteration of its cavity, when no symptom during life bespoke its existence. And if such an amount of unequivocal inflammation consist with absolute latency of the disease, are we justified in questioning the inflammatory character of the *tâche laitue*, because we meet with this appearance so much more frequently than palpable pericarditis presents itself to the physician? If this white spot were met with elsewhere, its inflammatory nature would be readily conceded, and especially if there existed at the same time other inflammatory appearances which are most commonly present with the *tâche laitue*, such as cellular bands

of various lengths connecting the opposite pericardial surfaces. Besides, so far from there being anything either in the function or structure of the pericardium to exempt it from inflammation, both are calculated to produce a peculiar susceptibility of it.

I would canvass the actual state of our knowledge of the diagnosis of this disease with the view of seeing what auscultation and percussion have achieved for us. I would also notice some of the difficulties that present themselves to us in the use of those diagnostic helps; and I shall conclude my remarks with what I fondly trust will prove to be a contribution of some value in the diagnosis of this interesting disease, at a stage of it when diagnosis almost allows that it is utterly at fault.

We know that when the opposite pericardial surfaces, roughened by lymph, are allowed to rub against each other, they produce a sound fitly designated the attrition murmur. It is the proper sign of pericarditis, and its discovery has been the grand achievement of auscultation in redeeming this disease from its diagnostic reproach. But, I would ask, is this sign constantly present when the pericardial surfaces are in the physical condition to produce it? No, it is not. The surfaces may have the necessary conditions for its production, but may be, and very frequently are, kept asunder by interposing fluid, and it is not until this be more or less removed that the phenomenon will be developed. Something of the same kind occurs not only in pleuritis, but in pleuro-pneumonia, where, in case of hepatization of the lung—although the pleural surfaces are in a condition to produce the attrition murmur if they rubbed against each other—yet the state of the lung being such as to refuse admission to the air, the motion required for the production of the phenomenon is wanting, and it is not until resolution of the hepatization has made some progress, as indicated by the crepitus redux, that it appears. In many cases the pleural element of the pleuro-pneumonia would have altogether escaped detection if the stethoscope had not discovered the unlooked for friction sound. I have met with cases of pericarditis where the extent of the effusion never allowed the pericardial surfaces to come into contact, so that the false membrane in which the heart was enveloped exhibited a uniformly rough, flocculent appearance. In other cases, although the effusion had been so considerable as completely to submerge the heart, the point of it could still rise above the fluid and strike against the opposite pericardial surface, and so produce a very circumscribed friction murmur. And in the necroscopic examination of such cases we could measure the exact

limits of where we heard this murmur, by the smoothness of the point of the heart and of the opposite surface, strongly contrasting with the rest of the rough flocculent false membrane. We here see an instance of function modifying organization, and nature endeavouring, as far as possible, to assimilate the pathological product to its parent structure. In some cases of pericarditis, with very copious effusion in certain positions of the body, the friction murmur will be present, and be absent in others. Dr. Corrigan and Dr. Stokes have both noticed this fact, the sound being very marked when the patient was examined in the horizontal posture, while it was no longer to be heard when he sat up.

As many cases of pericarditis are attended with extensive effusion, when the interposition of the fluid will interfere with the production of the friction sound, auscultation now only intimates to us the feeble, and, as it were, the deeper and more remote action of the organ. It is now on percussion we have chiefly to rely, which helps us, by marking out the extent of the effusion. This occasions a dulness, which can be due only to pleuritic effusion, or to dilatation of the heart, or pulmonic solidification, or pericardial effusion. We shall have but little difficulty, in general, in distinguishing between effusion into the cavity of the left pleura and effusion into the cavity of the pericardium. In case of pleuritic effusion, the heart will be displaced unless it be retained in its position by an adhesion contracted between its exopericardial surface and the internal surface of the lung. Can we as readily distinguish between the dulness caused by a dilated heart and by pericardial effusion? I believe we can, generally; the history of the case will materially aid us; any considerable mount of dulness from effusion will be sure to be attended with a sense of oppression, which comes on suddenly, often preceded by pain in the pericardial region. I say, often preceded by pain,—but I would ask (*en parenthese*), why is not the pain more constant, when it is so frequent a symptom of the inflammation of this structure elsewhere? This has often perplexed me. Before experiencing the sense of oppression, the patient was not aware of any præcordial distress; there was no premonitory announcement of it; the distress, if any, from dilated heart is ever gradual. I believe, further, that the application of the rule, laid down by Laennec, will generally avail in establishing the distinction, namely, that in case of dulness from effusion, the sounds of the heart are strictly confined within the limits of the dull sound, while in dilatation they are heard beyond these limits; so that the extent to which

they are heard beyond the limits of dulness serves as a measure of the dilatation of the organ. A case may occur, however, in which this rule may fail us, when pericarditis with effusion is complicated with aneurism of the ascending and arch of the aorta, so that the more obscure signs of the pericarditis are lost in the more striking and palpable signs of the aneurism. I have met with this complication in a woman, aged 28, who was under my care in hospital, exhibiting the unmistakable signs of aneurism of the ascending and arch of the aorta. Her breathing was greatly oppressed, and attended with stridor; she had also some difficulty in swallowing; her face was deeply congested; her neck swollen; there was considerable dulness to percussion at the upper part of the sternum, and towards the right side; corresponding to the dull sound there was a double pulsation, which could be followed down to the heart, whose action was weak. The patient was constantly in the sitting posture, with the body bent forwards; there was no question of the existence of an intro-thoracic tumour, and almost as little of that tumour being an aneurism; the absence of an abnormal sound satisfied us that the aortic valves were free. The patient was almost *in extremis* when admitted into hospital. Examination of the body revealed a large aneurism of the ascending aorta (in which the valves were not engaged), and of the part from which the anterior innominata proceeds; there was, besides, a pericardium filled with turbid serum, in which the heart, covered with flocculent lymph, seemed suspended; the extent of the effusion prevented the immediate contact of the opposite pericardial surfaces; and the double pulsation of the aneurism, mingling, as it were, with the double sound of the heart, nullified the two signs by which the complication could have been detected, viz., the attrition murmur, and the confinement of the heart's sounds within the limits of the dulness produced by the effusion. Sir Philip Crampton communicated a precisely similar case to the Dublin Pathological Society, in which the more prominent signs of aneurism so completely obscured the pericardial complication that its existence was not suspected during life.

The dulness caused by a solidified left lung can hardly be confounded with the dulness of pericardial effusion, although I confess I have met with cases of pericardial effusion so considerable as to push aside the left lung, and so to compress it posteriorly that it no longer admitted the air, and thus there did exist a difficulty in determining if the pericardial affection was complicated with pneumonia. Such a case I saw in Sir Patrick Dun's Hospital, under the care of Dr. Smith; and

such another I had under my own care; but in this latter case my difficulty was removed by making the patient assume the prone position, when the sound posteriorly became clear, and the respiration audible. This manœuvre removed the compression of the lung. But I may be asked, might not the compressing material—and which changed its place with the position of the body—might it not have been effusion into the pleura. I answer in the negative: for, if it had been, it would have caused dexiocardia or displacement of the heart, which it did not do. An adhesion between the exopericardium and pleura lining the internal surface of the lung could alone prevent this. In case of a solid lung, the heart's action appears stronger and more audible than under its normal circumstances, from the pulmonary structure being now a better conductor of sound; while, when the organ is surrounded with fluid, and compressed by it, it beats more feebly, and is heard through a medium of inferior conducting powers.

If we have had the opportunity of observing from its commencement a case where effusion into the pericardium has taken place, as occurred to me very recently, we find the area of dulness gradually diminishing, and, sooner or later, is heard a very limited, circumscribed, friction murmur corresponding to the apex of the heart. This murmur is then heard to an increased extent, both in length and in breadth, from the apex to the base of the organ, and from side to side. It is at once curious and interesting to observe the different characters of the sound in different parts, varying in smoothness and softness, according to the relative portions of the surfaces coming into contact with each other; the sound corresponding to the parts that had been longest rubbing against each other being comparatively smooth, while those brought into more recent contact emit a much rougher sound. I had an opportunity of remarking this in a case which I had under my care a short time since; the smooth friction sound corresponding to the apex contrasted strongly with the coarser sound generated nearer to the base of the organ. I would wish to direct especial attention to the direction of the friction murmur as serving to distinguish between it and a valvular murmur, which, as far as regards the sounds themselves, is sometimes no very easy matter. While the different friction murmurs are produced in the direction of the motions of the heart in the pericardium, the valvular murmurs follow the current of the blood, whether in an outward or in a retrograde direction. The heart, as it acts normally in the pericardium, has a triple motion:—1. A tilting forward motion, by which its point

strikes against the side of the chest; 2. A motion from its apex to its base; 3. A motion of rotation on its axis. If the heart be free to act in the pericardium, unrestrained by adhesive bands, the result of a former inflammation, or by intervening fluid, the result of the existing inflammation, its rough surfaces will rub against each other and produce the friction sound in this triple direction. I have seen the double murmur of aortic valve disease sometimes resemble the attrition murmur of pericarditis so closely, that if I had but the sound alone to distinguish them, I should have found it extremely difficult; but happily we had the directions of the respective murmurs to aid in our diagnosis.

A previous inflammation will produce a partial adhesion of the pericardium, and this will modify the extent and direction of the friction murmur. I had a remarkable instance of this in the case of a man, about forty years of age, in which the *bruit de cuir neuf* was more marked than I had ever before heard it. He had long been the subject of a cardiac affection; the pericardium was found to be greatly increased in thickness, and to have acquired the consistency of fibro-cartilage. Its cavity was divided into different chambers, formed by membranous dissepiments of various lengths and depths proceeding from its opposite surfaces. Some of these chambers contained fluid more or less turbid, and many were lined with recent lymph. I had no doubt that it was a case of long standing, and had been the subject of various inflammations occurring at different times, the lymph of the original inflammation being the matrix or the blastema of the subsequent pathological processes which had issued in its increased thickness and induration.

It is impossible to fix the duration of the friction murmur. It may pass away in very few days, leaving not a trace behind. Dr. William Beatty brought me to see a case of pericarditis with friction murmur; when we came to listen to it he admitted that what he had heard distinctly the day before had now ceased. An unusually strong action of the heart was alone to be heard, from which I predicted an adhesion of the pericardium, which post-mortem examination proved to be the case. At other times it may continue for weeks, or even months, when it disappears. What then happens? Either a complete removal of the material on which the murmur depended, or a partial removal of it, the remainder connecting the opposite surfaces, and destined to become cellular bands of various lengths, according to the position they may occupy, —longer the nearer they are placed to the apex of the heart,

in consequence of its greater motion, and shorter as they may happen to be nearer to the base, on account of the more limited motion of these parts; or it may remain so as to effect a complete agglutination of the opposite surfaces, and thus entirely obliterate the cavity of the pericardium. Have we now done with the disease? Has it now undergone a radical cure? Or, before we canvass this question, I would ask, have we any sign, or signs, upon which we can rely as indicating adhesion of the pericardium? These are deeply interesting questions; I shall consider the latter first, and shall refer to what are regarded as the highest authorities on such a subject.

Dr. Hope remarks: "I certainly consider this diagnosis to be one of the very few connected with the heart which cannot be made with absolute certainty, and I never, therefore, venture to assert respecting it."

He further remarks, that by a combination of signs he has succeeded in detecting it:—First, by the heart's beating as high up as natural in the chest, and causing a prominence of the cartilages of the left præcordial ribs. Second, and which he regards as the most characteristic of all, an abrupt jogging or tumbling motion of the heart, very perceptible in the præcordial region with the cylinder. Third, a history of previous pericarditis, especially if connected with acute rheumatism, affords strong presumptive evidence corroborating the preceding signs, and the absence of such history should make the auscultator pause before he ventures on a diagnosis in stronger terms than that it is probable or possible. With regard to the first sign stated by Dr. Hope, I would say, that I have never observed this high action of the heart and prominency of the cartilages of the left præcordial ribs in adhesion of the pericardium, but I have observed them in another morbid condition of the pericardium, in case of effusion into its cavity, when the fluid, gravitating towards the most dependent part, pushed up the organ towards its base, and produced a prominency corresponding to the base, the appearance which Louis designates "voussure." It is the pushed-up heart that forms the prominency, not the fluid, as is generally believed.

As to the second sign proposed by Dr. Hope, I can only say, that his description of an abrupt, jogging, tumbling motion, does not describe the irregular action that I have sometimes observed in cases of adherent pericardium. Dr. Walshe's description of it as a tumultuous, confined action goes nearer to conveying an idea of what I have heard. As I have observed it, it has been a kind of pulling, dragging motion, as if one contraction of the ventricle was resolved into a series of short,

abrupt contractions, sometimes so feebly and faintly expressed as if no impulse were communicated to the blood by the heart as it passed through it. The jogging, tumbling motion that I have observed has been in a quite different affection, viz., in the weak, gouty heart. M. Bouillaud remarks : " Je ne connois encore aucun signe qui puisse faire reconnaître les adherences du pericarde." Dr. Sanders thought he had discovered a positive sign of an adherent pericardium in the retraction or dimple taking place during the systole of the ventricle in the epigastrium immediately below the false ribs, and which he ascribed to the diaphragm being drawn in by the ascending motion of the heart. Dr. Hope observes on Dr. Sanders' sign :—" I have searched for this attentively in several cases of adhesion, but have not been able to detect it in any degree that could constitute a sign. Dr. Heim, of Berlin, also proposed this sign. Laennec, speaking of it, says :—" J'ai cherchè inutilement depuis deux ans verifier cette observation chez tous les malades qui presentaient quelque signe de trouble de la circulation, et je n'ai jamais pu aperçevoir le creux dont il s'agit, et dans le nombre de ces sujets il s'en est trouvè plusieurs dont le cœur adherait au pericarde." Dr. Stokes is the last authority to which I shall refer, as being the latest, and who had, therefore, the opportunity of testing the value of the signs of those who preceded him. He remarks :—" I more than doubt that there is any certain physical sign of adhesion of the pericardium, and have never been able to verify the sign of Dr. Hope of the double jogging impulse." I am bound to say, that none of the signs hitherto proposed has done more than to enable us to assert the likelihood of an adherent pericardium.

The sign which I propose, and with confidence, has this advantage, that we need not have followed the disease in its progress, nor do we require to have had any previous knowledge of the case. I have again and again tested its truth by post-mortem examination, as have others to whom I have communicated it, and have found that it may be relied upon. The sign to which I allude is, " *the persistence of the same extent of dulness to percussion in the præcordial region, no matter what position the individual may assume.*" The area of dulness on percussion in the præcordial region will be the same under every varying position of the body. The heart becomes so braced up that it cannot move as it does in its normal state, when, if examination be made, the patient either lying, or sitting, or standing, the results of percussion will vary accordingly, the dulness being greater in the first position, and less in the two latter. The individual himself, also, is quite con-

scious of the existence of some solid resisting body within his chest, which does not move in the changes of posture of his body, but impedes its motions.

I have proved this sign in cases where I have seen the patients all through their attack of pericarditis, and also in cases where the adhesion had been already formed, and have never found it to disappoint me. I, therefore, claim for it that it is *the physical sign* that may be relied on in proof of an adherent pericardium.

I would now return to the questions whose consideration I postponed, viz., when adhesion of the pericardium has taken place, have we now done with the disease? Has it now undergone a radical cure? Can we give the patient a *billet de santé?* I shall pursue the same course in the consideration of these questions that I did in the former instance, and shall adduce the opinions of those whom I regard as the highest authorities on the point. Our improved pathological knowledge has simplified the solution of these questions in some degree, inasmuch as we now know that much that had been charged upon pericarditis did not really belong to it—we allude particularly to the hypertrophy—which, from its having been so often found in cases of adherent pericardium, was thought to be an almost necessary result of it. We now know that this hypertrophy is most commonly the effect of the endocarditis that is so often coincident with pericarditis.

It is remarkable how various are the opinions of different high authorities on the pathological importance of adherent pericardium. All the older pathologists, viz., Lancisi, Vieussens, Meckel, Senac, Corvisart, and Morgagni, thought that with a complete and intimate adhesion of the pericardium the patient could not live in a state of health. Laennec, in stating his own opinion on this point, speaks first of Corvisart's in the following terms:—"Il (Corvisart) ne pense pas au reste qu' on puisse vivre et vivre sain avec une adhérence complète et immediate du cœur au pericarde." Then, in asserting his own opinion, he remarks:—"Je puis assurer que j'ai ouvert un grand nombre des sujets qui ne s'etaient jamais plaints d' aucun trouble dans la respiration ou dans la circulation, et qui n'en avaient presenté aucun signe dans leur maladie mortelle quoiqu' il y eut adhérence intime des poumons ou du cœur, et je suis tres portè a croire d' après le nombre de cas de ce genre qui j'ai rencontrès que l'adhérence du cœur au pericarde ne trouble *souvent* en rien l' exercice de ses functions." M. Bouillaud observes:—"Les adhérences ne me paraissent pas troubler nécessairement le jeu du cœur, ou

en rencontre du moins chez des personnes qui jouissaient de la plus florissante santè." It is remarkable that English physicians regard adherent pericardium with much more alarm and apprehension. Dr. Hope, from having always found enlargement of the heart in cases of adherent pericardium, concluded that the former is the constant and necessary result of the latter. He remarks:—"I have observed that cases of adhesion terminating in enlargement often hurry to their fatal conclusion with more rapidity than almost any other organic affection of the heart; and, on the other hand, I have seen patients repeatedly die from the consequences of adhesion, the history of which I could trace eight, ten, or more years, yet some individuals would represent their health to have been perfect during the greater part of that time. Hence I infer that, though close adhesion may not for a time create much inconvenience, its effects are ultimately fatal." Again he remarks:—"Unless the effused lymph as well as the serum be absorbed, it causes an adhesion of the pericardium, and thus constitutes a destructive disease." Dr. Watson designates adherent pericardium an apparent but unreal recovery. Dr. Stokes has not expressed himself distinctly or directly on this point. My own experience on the subject is, that while I have met with several cases of adherent pericardium where the patients suffered no inconvenience either in the circulation or respiration, and when death from other causes proved the adhesion;—still I have met with so many more cases in which the patients, after having had one attack of pericarditis, and affording every reason to believe that the pericardium had become adherent, were afterwards the subjects of an intercurrent inflammation in the cardiac region, which at length terminated fatally; and where post-mortem examination revealed an adherent pericardium, the adhesion being effected through the medium of a false membrane, whose depth and density were in proportion to the age and duration of the disease, and which besides exhibited various pathological modifications, such as being the seat of hemorrhage, suppuration, tubercle, and cancer:—with such evidences as these, and comparing the one set of cases with the other, I have no hesitation in saying, that I should ever consider an individual with an adherent pericardium to be in an insecure state, inasmuch as the disease has left behind it a sickly product, not alone more susceptible of being affected than the parent structure was, but which has, as a principle of its constitution, on the occasion of every future pathological movement, a tendency to become more and more degenerate, and thus to drift more and more into unhealthy action.

Art. IX.—*On the Deformities occasioned by the Cicatrices which result from Burns.* By Francis Rynd, A.M., F.R.C.S.I., Surgeon to the Meath Hospital, &c.

Amongst the cases which daily present themselves for relief at hospital, there are few that come before the operating surgeon with a deeper or more engrossing interest than the cicatrices that remain after deep or extensive burns. In many, indeed in the majority of instances, creating a most distressing deformity,—in some occasioning actual pain,—and in all interfering materially with the uses and functions of the parts engaged, and consequently with the comforts of the patients: these accidents (if such they can be called) appear pressing for relief, and the subjects of them willing to undergo any amount of suffering that promises to procure it. Again, in several of these cases there is a delusive semblance of facility, that almost seems to insure success; they look as if the section of some little band, or the separation of some obvious and trivial adhesion, was all that could be required to relax the existing tension, and that the result of the operation must necessarily be as certain as its present performance would be easy. On the other hand, however, the experienced surgeon knows the real difficulty of the operations that are usually required—the extensive incisions that must be made—the pain that must be endured—and the risk incurred; and, more than all, the uncertainty as to the result: and he feels that these ought to be sufficient reasons to induce even the boldest to pause before he inflicts such an amount of positive evil, in the hope of obtaining a more than questionable advantage. It is a fact that cannot be disputed, that most of these operations are, in the end, decidedly unsuccessful; that no matter how extensive or how free the incisions may have been, or how entirely and completely the bands and contractions apparently relaxed, or how promising in every respect the case may appear, still, as the cicatrization of the wound progresses, the original inconveniences are renewed, until a condition of parts is established, as bad, or even worse, than that which had previously existed. It is, therefore, a matter of no small importance to inquire into the circumstances which render these cases so uncertain and so unmanageable; whether there is any peculiarity in the cicatrix of the burn; why it should always present the uneven, puckered, and unseemly surface it does; and why, during its formation, and in a more remarkable degree afterwards, it should exhibit such an obstinate tendency to contraction; and if, as in the case about to be detailed, an example should occur wherein an

operation succeeds almost beyond expectation in removing these deformities, especially to inquire if such case presented any remarkable feature, either of symptom or treatment, that might serve to elucidate this confessedly difficult subject.

I believe the peculiarity of the burn or scald to be, that it is attended with a degree of inflammation, greater or more intense than that which occurs in injuries of seemingly equal extent and violence; that is, that whatever the effect of inflammation may be on the ultimate structures, these effects are wrought out more extensively and completely in the burn than in any other accident. Thus, if inflammation is assumed to be a debility or weakness of the vital actions concerned in the nutrition of the part, we should be led to consider that in the inflammation of the burn or scald, that debility is exaggerated and increased, and this view of the subject appears to be substantially borne out by observation of the external symptoms. Thus, looking on the shock inflicted on the nervous system, the severity of the irritative fever, the intensity and persistence of the pain complained of, and the quantity of constitutional distress so disproportionate in general to the extent of local injury, we must acknowledge that there are something more than the ordinary concomitants of inflammation: and, subsequently, during the progress of the case, observing the slowness with which the sloughs are cast away, the size and softness, and flabbiness of the granulations, the profuse abundance of the discharge, and its foul and fetid quality, the tediousness of cicatrization, and altogether the deficiency of vital energy so remarkable throughout the entire process,—it is impossible to avoid the conviction that in the burn there is something more than commonly unfavourable to recovery, something that indicates a more than ordinary depression of the living principle. But, besides this obvious debility, there seems to be an inequality in the severity of the inflammation, and in its effects. I mean not by this expression the difference that must exist between the part to which the heat has been applied in a concentrated form, or been long continued, and that which has been less exposed to its influence, for every one is acquainted with the variety thus caused, and that every form and degree of burn may be found in the one individual as the consequences of the same accident; but that, on the same surface, and apparently without any cause, there are spots or specks where the burn seems to have sunk more deeply, or at all events where its consequences are more severely experienced. This inequality of the inflammation will be hereafter

found to exercise a very important influence over the progress and termination of the case.

I am not now about to discuss the pathology and treatment of these accidents further than may be absolutely necessary to a right understanding of the nature of the cicatrix, and the operation required for its relief. Every surgeon is, unfortunately, but too familiar with these harassing and painful sores, with their large and flabby granulations, bleeding at every touch, and pouring out abundantly their wasting suppurations; and although I believe that much may occasionally be learned as to the future progress of the case by an attentive observation of the ulcer, I pass from this part of the subject to that which is more intimately connected with my present subject, namely, the formation of the cicatrix. In all injuries attended with loss of substance, the healing of the ulcer is preceded by its granulation, and the rapidity with which the new skin is formed seems to depend on the condition of the surface. If the general health be good, and the vital energies of the part unimpaired, the granulations are small, florid, even with the adjacent surface, and discharging a moderate quantity of healthy pus, and the new cutis spreads over their surface, advancing from the circumference towards the centre, until the whole is fairly covered. It is supposed that, besides their other vital properties, these granulations possess a contractile force, which is in constant operation, and draws the edges of the ulcer inwards, so that the size of the open sore is diminished partly by this contraction, and partly by the formation of the new pellicle. The cicatrix, then, when completed, is smaller in size than the original sore had been: it is level with the adjacent skin, or nearly so, and at first redder in colour; but after some time a remarkable change may be observed to have taken place, in that the size is still further diminished, the surface has subsided below that of the adjacent parts, and the colour has become perfectly pale and white. The new skin is not tessellated, it is not porous, and never perspires, and, as far as I know, performs no function of the original beyond serving as a covering to the internal parts. Such is an outline of the process of cicatrization in a person otherwise perfectly healthy, and when the vital energies of the part are not seriously impaired, but when either of these conditions is not fulfilled, the process is perverted or imperfectly fulfilled, and just in proportion to their failure will the state of the newly formed cicatrix be unhealthy or incomplete.

Perhaps in no instance is there so entire a deviation from

the natural or normal process as in the cicatrization of the burn: Nature seems to experience a difficulty in struggling with the accident from the very commencement, and at length succeeds but very imperfectly. Tedious in its formation, for even the sloughs are longer in separating here than in any other case, the ulcer is still more tedious in its progress, and weeks, and even months, often pass away, leaving it still unchanged; the exuberant granulations on its surface forming, as it were, an impassable barrier against the advance of the cicatrix. These granulations are seldom or never even, being elevated in one part, depressed in another, painful and irritable in all. Islands of new skin often form on the ulcerated surface, and occasionally bands are seen as if in an effort to traverse it in different directions; these again are often swept away on the occurrence of any derangement of the system, and replaced again when circumstances become more favourable, evidently showing that, whatever the process within the part may be, it is unequally and irregularly carried out. At length, after probably a long and protracted confinement, it begins to heal; but the advance of the cicatrization, although progressive, is not constant; sometimes it proceeds rapidly for a time, then suddenly and without any apparent cause, may be arrested or even retrograde, the newly formed skin being absorbed, and the ulcer opened afresh; sometimes, having been nearly closed, a patch of ulceration remains open and unhealed for months, harassing the patient, and obstinately refusing to yield to any treatment. But we must suppose the ulcer closed and the cicatrix completed,—for it is with it we have to deal,—what is now the appearance of the parts? Obviously, the newly formed skin presents a smaller extent of surface than that of the former ulcer, so far affording evidence of the operation of some contractile force in the granulations, and there are often deformities observed at even this early period, if the case has been neglected and wrong positions of the parts permitted, but, though seamed and marked, and presenting a very different appearance from that of the healthy cicatrix, it is still full and plump, red in colour, and covering an abundance of soft granulation underneath. It is probable that any deformity present at this stage is still removable, provided it is not so situated as to be irremediable under any circumstances.

Now, it cannot be too forcibly impressed on the young practitioner, that his business is but half finished when the cicatrization of the ulcer consequent on a severe burn appears to be completed. The diseased part has still a most important process to go through, which will require to be tended and

watched with unremitting attention, and, if neglected, will certainly occasion very distressing results. How frequently do we see patients whom we had discharged from hospital apparently recovered, and with their wounds cicatrized, return after a considerable interval with the injured parts shrunken and shrivelled, banded and contracted in different directions, and twisted and drawn into inconvenient and unseemly, and often unnatural positions — and this from neglect of what might be termed the after-treatment of burns. It must be recollected that, in any cicatrix, the granulations never remain; they never assume the character of the adjacent tissues, or become loose and cellular, like the membrane in which they were formed, or from which they sprung. They are absorbed, and in their place lymph is deposited, which becomes condensed into a fibrous, fascia-like substance, which is attached to the different parts around, and fixes and fastens them together. If this process takes place after the healing of an ordinary wound, how much more certain to occur in the burn, where the parts are so injured and debilitated as scarcely to be able to make the exertions necessary to a recovery. This resorption of the granulations often occupies weeks, or even months, for it takes that time to convert the red, and soft, and yielding limb, into the pale and wasted, contracted and useless member that is brought back to us in search of relief. It is, there is good reason for believing, attended with some pain, at least with some uneasiness, for most patients complain of more or less suffering long after the healing of the ulcer, and it is probable that this distress is aggravated by any tension of the parts, for patients uniformly seek to relieve themselves by placing the limb in a relaxed position. Hence the unfortunate and unmanageable contractions we are so often vainly called upon to remedy when too late, but which might have been prevented, or at least mitigated, by a little attention applied at a proper time. Whilst the granulations are in the course of removal, the subcutaneous, fascia-like membrane is formed; it occupies the position, although not the space, held by the former, binding the parts exactly in the position they happen to occupy; sending down processes into every interstice from which cellular membrane had been removed by sloughing, and so attaching itself to the muscles, and them to each other, as materially to interfere with their freedom of action. It is thus, much more than through any contractile power seated in the cicatrix, that the parts are firmly fixed and retained in their new and unnatural positions; for the new skin often moves freely over, and seems to be but partially and, as it were, acci-

dentally attached to it, being, by those attachments, thrown into rugæ or folds, or compelled to form cords or knots, or, in a word, to assume that irregular, puckered appearance which characterizes the cicatrix of the burn. It would also appear that the wrinkled and nodulated face of the scar bears some relation to the exuberance of the granulations and the deficiency of their vital powers: when being removed, as too weakly and unfit for the purposes of life, they leave behind a cicatrix, usually too large for the contracted surface it has to cover; and when that surface is further diminished by unsuitable positions and by the tractile force of newly-formed adhesions, it is impossible but that covering must be thrown into wrinkles and folds, in which it will be firmly fixed, and must remain. In illustration of the manner in which the very peculiar cicatrix of the burn is formed, I may be permitted to observe that, in all cases of ulceration marked by large and flabby granulations, and attended with an impaired state either of the part or the constitution generally, the cicatrices are uneven, and puckered, and irregular; such is the scar always remaining after the scrofulous ulcer, and occasionally the same may be observed as the consequences of large and unhealthy syphilitic sores. I think it is a remark of Dupuytren's, that any surgeon of experience, on examining a cicatrix, ought to be able to pronounce on the kind of ulcer that led to its formation.

If this is a correct view of the pathology of cicatrization, it follows that the chief attention ought to be bestowed on a case at the very time when it is most usually withdrawn from it, and a patient most carefully looked after just when he is discharged from hospital, and probably lost sight of for a length of time, or for ever. It is true, that if the injury is situated on a fixed and immovable part—as on the outside of the thigh—there will be no very obvious deformity; and the inconvenience, whatever it may be, will be strictly limited to the part itself engaged: in this case, no interference with the progress of the case is called for, as none would have the least effect in altering or modifying the character of the cicatrix; but where it is placed on a movable part, and especially on one the motions of which may be successfully antagonized or restrained, it is essential that position, splint and bandage, nay, that mechanical contrivances of a more complex nature, and all and every surgical appliance that could be brought into play, should not only be resorted to, but rigidly persevered with, in order to preserve the part or the limb in its natural position, or, if that be impossible, in the one most nearly ap-

proaching to it. This treatment must be continued for a length of time, some say for a month or six weeks, but, according to my experience, a much longer period is necessary, and it is absurd to fix any specific time, for much will depend on the extent and depth of the injury, the health and constitution of the patient, and those numerous and often inappreciable circumstances which modify and determine the character and course of every sore. Perhaps the most reliable guide on such an occasion will be the cicatrix itself; for when it becomes pale, or loses its red tint, and acquires the colour it is permanently to hold—sunken below the level of the adjacent parts—perforated with small apertures, as if it sent down small funnel-like processes into the deeper structures—and, more than all, when it becomes movable over the subjacent substance—it is evident that the diseased process has been completed, and that no further tendency to contraction exists. It is curious, that during all this time the chief opposition to our preservative efforts generally comes from the patient himself. It would appear, either that this secondary process of cicatrization (if it may be so called) is so irksome and painful, or that the efforts to restrain its effects, or both taken together, are so distressing as to become almost intolerable. I have known patients, although fully warned of the consequences, stealthily loosen their bandages and relax their dressings, to escape the discomfort occasioned by them, and when precautions were taken to prevent this, actually leave the hospital rather than submit to the requisite restraint.

But, unfortunately, it is possible that a burn may be situated in a position where it will be impracticable to apply any mechanical means of restraint, and where, of course, the prevention of some degree of deformity is unattainable. Where the motions of a part are necessarily very loose and free, and its muscles have only one permanently fixed attachment, as in those of the face generally, for example, it is clear that no mechanical appliance will be capable of restraining them, and that some degree of deformity is inevitable. Again, where the motions of a part, although, perhaps, susceptible of restraint, are nevertheless habitually so free and constant that the application of such restraint soon becomes intolerable—as, for instance, those of the head upon the neck—a successful management of the case is nearly of equal difficulty, and, accordingly, it is in these two situations, namely, on the face and neck, where disfigurement of any kind is most distressing, that it is most likely to occur, and most difficult to prevent. These are cases in which the surgeon will be almost certain to incur reproach,

for patients are never willing to believe their own sufferings irremediable, and although the cause of failure may rest principally, if not entirely, in themselves, are quite willing to place the responsibility and the blame on any shoulders but their own. These also are the cases in which the resources of operative surgery are so frequently called on at a subsequent period with a view to the removal of the deformity, and in which they are generally so unsuccessful, that many practitioners decline them altogether, refusing to inflict such severe pain and such protracted confinement where the result is so extremely uncertain. I believe there are numerous cases in which a cure is perfectly impossible, where the adhesions formed by the new membrane are so numerous, so deep, and so extensive that they cannot be detached, and if they were so, where the same cause that originally produced them, still in operation, would cause them to be renewed. Situated generally on the face, where any deformity is so unendurable, they render the unhappy patient not only willing to undergo any operation, but pressing for its performance, and thus, whilst they account for the frequency of these operations, explain their want of success. Many surgeons, guided by the results of their own observation, decline to operate on the cicatrices of burns at all; others have distinctly marked out and specified the parts of the body in which operation should not be attempted; and all seem unwilling to hazard their reputation on a proceeding from which so little has been gained hitherto.

I am not now about to delay in enumerating the various operations which have been devised and practised for the relief or removal of these deformities. I have seen a transverse incision through the cicatrix carried down almost to the bone, and the most forcible extension made afterwards, almost to the tearing of the parts asunder; yet, when the wound was subsequently healed, little or no benefit had been derived from the proceeding. The cicatrix has been divided by several transverse incisions in different parts of its extent, without any very successful issue being obtained. In other instances I have witnessed the attempt of wholly dissecting out the supposed morbid cicatrix—a proceeding tedious, painful, and bloody, and, it must be acknowledged with regret, generally ineffectual. In fact, almost all the operations that have come within my observation have been only partially, if at all, successful, principally because the operator's attention has been directed more to the cicatrix itself than the newly formed structure underneath, which is really the active agent in the production of the contraction, and the inconvenience conse-

quent thereon. The following case will illustrate the principle I have endeavoured to explain, and the operative proceeding I have been led to adopt in consequence :—

Maryanne Kells, aged 7 years, a delicate, but intelligent child, was admitted into the Meath Hospital, August, 1854, presenting the appearance of very great deformity, in consequence of a severe burn. The history of the case could not be distinctly or accurately ascertained. It appeared that, three years previously, her pinafore had caught fire, and, blazing rapidly upwards, had scorched her neck, chin, and the lower part of the face. The injured surface became (as her mother said) a mass of ulceration, which confined her to bed for several months, and from which she recovered with great difficulty. It cannot now be ascertained by whom the little patient was attended, and whether any or what measures were adopted for the purpose of preventing deformity ; but her mother states that she was extremely irritable, and difficult to manage throughout, and that, long after her recovery—that is, after the ulcers had healed—she complained of excessive pain ; indeed, at and up to the time of her admission she had always experienced more or less suffering, referred to the situation of the injury.

Present State.—It is pretty clear that all the lower part of the face corresponding to the inferior maxilla, the chin, and the front of the neck, must have been deeply and extensively burned. Above, a hard and unyielding cicatrix extends from the lobe of the ear at one side, engaging the inferior part of each cheek, the entire of the lower jaw and under lip to the lobe of the opposite ear; the chin is nearly entirely effaced, being, along with the lower jaw, bound down and fastened by a broad and firm adhesion to the superior part of the sternum and clavicles. The cicatrix, which is still of a red colour, is flat superiorly, broad, and seems to be immovably attached to the deeper structures by a network of dense fibrous bands; inferiorly, where it spreads out over the upper surface of the chest, it presents the same appearance; and in the centre, just behind the attachment of the chin, the angular space in front of the neck is filled up by a fibrous mass, loose, slightly movable, which imparts the delusive sensation that if the adhesion in front of it was only divided, and the chin detached from the sternum, there would be no difficulty in causing all the parts to fall back into their natural position, and restoring them, if not to their appearance, at least to their former uses. But it was not in comeliness alone that our little patient was injured; her general health began to be seriously impaired.

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The inferior lip, entering into the formation of the cicatrix, was drawn down and everted; the corresponding portion of the gum is uncovered, and the teeth exposed; she has lost the power of closing her mouth, and it therefore remains permanently open (see Plate, fig. 1). The consequences of these derangements extend far beyond the local unsightliness and inconvenience, for she can hardly masticate her food, if at all; has great difficulty in swallowing, particularly fluids, which escape from her mouth in the attempt, and she has a constant dribbling of saliva; hence she suffers from indigestion, irregularity of bowels, loss of sleep and appetite, and has complained of constant headach ever since the adhesion has been formed, and her head forced to endure its unnatural position.

This certainly was a case that held out but little promise. The very great extent of surface that had been injured, the closeness and firmness of the adhesion, and its probable attachment to the deeper structures, would necessarily call for equally extensive incisions, and insure that any operation for their relief would be tedious and painful, and attended with considerable loss of blood, which a person in the weakly condition of this patient would be scarcely able to endure. And when to these objections was added the uncertainty of the operation, that nothing could be positively guaranteed as to its result, and that, after the trial had been made, she might possibly find herself in the same or even in a worse condition, there was little encouragement to propose an operation, or to hope much for its success; still, the hopelessly wretched condition of the child, the conviction that she could not long survive in that condition, and, even if she did, that her existence would be but a prolongation of utter misery, combined with the urgent and pressing entreaties of the mother, overcame all objections, and determined me on making the attempt.

The child being placed on the operation table, an incision of a semilunar shape (the concavity being directed upwards) was made through the sound parts, directly across the upper portion of the chest. As the chin lay forward, resting on the breast, this wound seemed to be carried nearly from ear to ear, and lay entirely external to and beneath the cicatrix. A flap was then raised, which was dissected upwards, and when it reached the cicatrix, care was taken that it should include the subjacent fascia-like membrane also, and if any fibres of the platisma myoides had escaped the ulceration and sloughing, they must have formed a portion of the flap also. The manipulation of the operation may, for the rest, be described as a

dissection of the anterior part of the neck. I detached this large flap accurately and carefully. I removed along with it the fascia, and what seemed to be some muscular fibres. Wherever a process was sent down, I followed and divided it. Wherever there was an abnormal adhesion or attachment, it was separated. The dissection was then carried up on the face, until the lip became released, and could be restored to its place, the mouth closed, and could remain so, and then a large, loose, bluish, and almost bloodless flap hung down, on the proper management of which depended the patient's restoration or not. The operation lasted more than thirty minutes, in consequence of the minuteness of the dissection, and the care to divide every minute attachment; it was bloody, although the external jugular veins were not found, and seemed to have been obliterated by the original accident, but numbers of small vessels oozed from every part of the surface; and it would have been dreadfully painful, but for the state of insensibility in which the poor patient was kept throughout. Every attachment being thus removed, the loose flap was pushed back, and nicely and accurately adjusted under the chin, leaving the mouth closed, and the lip undisturbed; the remainder was then laid on the front of the neck, and held there whilst the sound skin around the wound was drawn towards it, from either side and from below. At first a very considerable deficiency of covering was experienced, but this improved at each successive dressing, and by carefully attending to maintain the fascial portion accurately in its place, and drawing the adjacent sound skin forward, a most satisfactory recovery took place. The chief object in the operation was to detach every portion of the subjacent fascia; the principal care in the dressing was to act on the sound skin, and to draw it forwards to supply the want that had been created by the wound.

It need scarcely be added, that the cure was tedious, and occupied several weeks, but was complete (see Plate, fig. 2), and at the end of twelve months it remained perfect, without the slightest tendency to relapse.

Art. X.—*Clinical Observations on Pneumonia, and its Treatment by Sulphate of Quina.* By Samuel Gordon, M. B., F. R. C. S. I., M. R. I. A., Physician to the Whitworth and Hardwicke Hospitals, Examiner in Medicine to the Queen's University.

The great variety of treatment which has, from time to time, been recommended for *pneumonia*, and the great success attributed to each variety, would alone be sufficient to raise a doubt in our minds as to the identity of the affection, particularly when we find these opposite modes of treatment recommended, not for different stages of the same disease, but in order to resist its progress from the commencement.

This great variety of treatment is not merely warranted, but practically found of the greatest advantage; not because the type of the ailment varies according to the previous constitution of the patient, but because the generic word *pneumonia* comprises several distinct forms of disease. What is the precise seat of the inflammation in pneumonia? is the question invariably discussed by all writers on intra-thoracic disease; and each constituent part of the lung separately, and all collectively, have at different times been declared as the seat of the inflammatory effusion. Thus, it is stated that "pneumonia consists of an exudation *into the vessels and tissues* of the lung;" that "the solidity of pneumonia arises not from any deposition of lymph into the air-cells and tubes, but merely from an excessive congestion of blood in the vessels." Again, "the seat of the effusion of plastic matter in pneumonia is in the fine air-passages within the lobules of the lung, the interlobular passages being free;" and to these might be added various other pathological views, which different authors have taken of this *vexata quæstio*, not omitting that lately adduced—"Whether the capillaries of the bronchial arteries, or those of the pulmonary arteries, are the seat of inflammation."

The celebrity and high character of the various authors who have made and published these investigations were, alone, sufficient proof that great and, doubtless, important differences are found in the morbid anatomy of pneumonic inflammation; but our own daily experience confirms it. It is not meant that a form of pneumonia is now observed, which differs in its anatomical characters from one observed long ago; or, as some authors say, that the type of disease has altered, and that, instead of acute inflammatory pneumonia, we now have, in general, to treat a secondary or typhoid affection. The anatomical differences—and they are various—which Bouillaud began

to describe, are only now being fully ascertained, and it is for us to discover if there exists any essential differences in the disease, according to its anatomical situation; if there are any symptoms or physical signs by which these differences can be established during life, while yet there is any practical use in the discovery; and lastly, whether, these differences being established, we can point out which of the remedies already in use in this disease are suitable for each particular form of it, or can make any addition to those already provided.

Having been, for several years, an attentive observer of the numerous cases of pneumonia which have, from time to time, been admitted into the Whitworth and Hardwicke Hospitals, I have been gradually led to the conclusion, that there are recognisable three essential forms of primary pneumonia, according as the seat of the effusion or other bio-chemical alteration exists originally in the air-vesicles, the cellular tissue, or the pulmonary vascular system. These three forms are found existing in different stages, and there are several subdivisions of them, according to the *nature* of the effusion—the primary *seat* of the effusion constituting the generic distinction.

It is not, of course, pretended, that we are as yet able, on the post-mortem examination of any given case of far advanced pneumonic inflammation, to specify with any degree of certainty the exact and essential seat in which the disease originated; nor, fortunately, is it a matter of much importance to be able to do so; but I differ greatly from those who consider it neither an important nor difficult matter to establish in what immediate tissue of the lung the disease originates. Its importance is only equalled by the difficulty; and, impressed with this conviction, I have for some time endeavoured to classify the different cases of pneumonia which I have met with, according to the original seat of the disease, and to determine, accordingly, the mode of treatment to be adopted.

The statement of Hodgkin has, I believe, never been questioned, that "gray hepatization, or gray softening of the lung, includes two totally different conditions;" but instead of the diathesis of the patient, or the state of his health at the time, being the *immediate* cause of the nature of the effusion, this latter is immediately determined rather by the tissue originally implicated, while the constitutional powers and habit of the patient will determine the *degree* of inflammation, the rapidity or slowness with which the progressive alterations in the effusion will take place, and other important points which may, perhaps, hereafter be considered. I shall not, at least on the

present occasion, allude to the distinctive characters which belong to each of the different forms of pneumonia, or, what is even more important, to their respective treatment, but confine myself to that which has its primary seat in the interior of the pulmonary vessels, and would wish the following remarks to be considered as referring only to this particular form of pneumonia.

Pneumonia, originating in the pulmonary capillaries, appears to be essentially a blood-disease, and sometimes comes on very suddenly, at other times more slowly; like all diseases of this type, it is often epidemic; it sometimes supervenes on other diseases, but often attacks persons who were previously in apparently good health. The great chemical alteration which the blood would appear to undergo, consists in the augmentation of the fibrine, but this augmentation taking place, amongst other modes, by the conversion into it of a more or less considerable quantity of the albumen: we thus have two distinct morbid actions taking place within the sanguiniferous system, one consisting in the removal of the great nutrient or formative power in the blood, and the other in the sudden engorgement of the capillaries with a great mass of (most probably) crude fibrine, which, partly from depressed vital action, and partly from mechanical over-distention, they are unable to transmit.

The symptoms and physical signs with which this form of disease is attended are such as are not merely easily reconcilable with this impoverished condition of the blood, and engorgement of the pulmonary vessels, but such as we might naturally expect to be produced by such amount of morbid action. It rarely happens that we have an opportunity of examining the lungs of a patient who has died in the very early stage of this affection. I have said above that the disease is frequently epidemic; it would seem to have been so in the year 1841, at which time I was Resident Clinical Clerk in the Hardwicke Hospital; it then attacked several patients who were recovering from fever, and their strength being already greatly reduced, some died within a few hours from the commencement of the attack; these cases were carefully noted by me at the time, and the post-mortem appearances were exhibited at different meetings of the Pathological Society[a] by Dr. Corrigan, Physician to the Hospital. Cases apparently similar were also noticed about the same time by Dr. Stokes and Dr. O'Ferrall. One of Dr. Corrigan's communications on the subject terminates as follows:—"The circumstances I have men-

[a] See Reports of Pathological Society of Dublin, vol. i. pp. 53 and 71.

tioned, if confirmed by future observations, would go to establish an idiopathic form of disease, characterized chiefly by an atonic state of the vessels, *and in which the symptoms were not amenable to any of the usual modes of treatment.*"

The appearance of a lung when seen in the *very early* stage of this form of pneumonia is very unlike that produced by acute inflammation of the air-vesicles of the lung. When first seen after the opening of the thorax, it presents a dark-blue colour. This appearance, however, is very evanescent, and is almost completely lost in the course of three or four hours after the lung has been removed. When grasped in the hand, it feels like muscle; but, unlike what is usually termed carnified lung, it is increased rather than diminished in size, but is not so much increased as in the more ordinary form of pneumonia: it is firm and heavy, and sinks in water, but does not appear to have any tendency to pass into any form of hepatization, nor does it afford any feeling of crepitation, or anything allied thereto. This description, which I have borrowed from my reports of the cases above alluded to, and from Dr. Corrigan's demonstration of the appearances before the Pathological Society, as well as from subsequent examination of other similar cases, appears to me to indicate a modification of pulmonary disease altogether different from ordinary vesicular pneumonia, nor yet to be confounded with pulmonary apoplexy, or "the collapse of the lung as connected with bronchial obstruction," described by Gairdner and others.

The symptoms which existed in those who died in this very early stage were great and sudden collapse, sudden lividity, and coldness of the surface; the lips became purple, and a dark flush arose on the face; they complained of excessive weakness; there was great depression of strength—in fact, "in no case could the asthenic character be better marked." In some cases the patient complained of difficulty of breathing; but even when there was no complaint uttered, the increased rapidity of the respiratory acts—in one case they amounted to sixty in the minute—indicated great pulmonary obstruction. The respiration was usually diaphragmatic; the tongue was moist and dark-coloured; the pulse small, feeble, and very rapid; the surface of the body almost cold; there was seldom any complaint of cough, but there was frequently pain in the side, which was not always referred to the part where the physical signs showed the existence of disease. These physical signs were, great dulness on percussion over a certain portion of the chest, according to the extent of lung engaged, which did not seem to follow any precise rule; in some instances the upper part of the lung was

affected, sometimes the lower, sometimes portions of both lungs: and, corresponding to the amount of dulness, there was either absence or great feebleness of the respiratory murmur.

Patients who died in this stage of the disease died generally of collapse. I have never seen those extreme symptoms to attend this disease, except in individuals who were greatly reduced by previous illness or some other cause: they generally, but not always, prove fatal. Several recovered during the epidemic in 1841, and within the last two months I saw a very well marked case of it, which recovered under Dr. Corrigan's care, in the Hardwicke Hospital.

The symptoms which attend the disease, as it generally comes under our notice, and which seem to distinguish it from ordinary pneumonia, are, that—1. The peculiar heat of the skin, so forcibly dwelt upon by Addison, as almost pathognomonic of pneumonia, does not exist; the skin is never very hot, sometimes dry, often cool, and even perspiring; but it very early acquires a peculiar *jaunâtre* aspect, which it retains throughout, and often does not lose for some time after all physical evidence of disease has vanished. This symptom was very strongly marked in several cases lately in hospital, some of whom are still under observation. 2. The cough is altogether different in character from that of ordinary pneumonia: it is very short, frequent, and performed without any apparent muscular effort whatsoever—very unlike the painful and distressing cough so often witnessed in vesicular pneumonia. 3. There is seldom any expectoration; when it does occur, it is not viscid, nor homogeneous, nor tenacious. 4. There is seldom much pain in the side; never the acute, stabbing pain which occurs in vesicular pneumonia from the pleura being implicated, because we rarely find pleurisy existing in this form of disease, and, as we remarked before, we often find the patient refer the pain which he does complain of to a part of the chest where we have no other evidence of disease existing. 5. The high fever which attends vesicular pneumonia is absent; the pulse is seldom remarkably frequent; it is always feeble, and soon acquires a peculiar jerking feel, which it owes to the tenuity of the blood. The patient has frequently a listless and careless manner, and appears unwilling to speak even about his illness. Such was the case in a boy, about nine years of age, who was admitted into the Hardwicke Hospital, on June 5th, with solidification of almost the entire of one lung; yet neither he, nor his parents, who came with him, mentioned any one symptom from which such disease might be inferred. The prominent symptom for which they requested relief was constant vomiting. In

some cases the pulmonary affection is accompanied by an attack of herpes labialis. There is always complete loss of appetite for solid food, but often great thirst; considerable modification of the voice often exists, amounting in some instances very nearly to aphonia; there is sometimes restlessness, and often insomnia. The physical signs are very constant: there is a dull sound on percussion over the affected portion of the lung or lungs, and at first very feeble respiratory murmur, which, however, maintains somewhat its vesicular character, but soon becomes very decidedly bronchial. The peculiar crepitus of vesicular pneumonia is never audible. If the patient recovers, the progress of the physical signs is very remarkable; sometimes within twenty-four hours the extreme bronchial respiration and bronchophony are replaced by a feeble or even ordinary vesicular murmur, proving that the air-cells merely suffered obliteration from pressure, which, being removed, they again expanded.

The patient seldom dies in this stage: when he does, it is generally found that a very great portion of the lungs is engaged in the disease; they are very tough and heavy, and a section of them exhibits an uniform light gray colour. But the progress of this affection is very rapid (it seldom extends over a period of weeks, like some cases of vesicular pneumonia, which have passed through all its stages), and the lung seems readily to pass into a condition somewhat allied to gangrenous degeneration. Effusion now takes place into the bronchial tubes, and the patient dies asphyxiated. Post-mortem examination usually shows the lung to be of a dirty gray colour; there is no well-marked suppuration, but a species of general softening, and commencing decomposition.

In the last volume of this Journal my colleague, Dr. M'Dowel, has drawn attention to the "connexion between certain forms of pneumonia and renal disease," and under certain circumstances he considers the pneumonia to be one of the secondary affections of Bright's disease. While I have no reason to question the accuracy or validity of Dr. M'Dowel's conclusions, I think that the converse of this proposition is also found, and that a modification of renal disease, sometimes at least, accompanies or succeeds this form of pneumonia; my reasons for making this assertion are, that on several occasions, while testing the urine to discover if the chlorides had disappeared from it, I found that in general they had not, but that the urine contained albumen; knowing that this fact had been already alluded to as of occasional occurrence in pneumonia, I at first did not pay much attention to it; but more extended ob-

servations proved that the relation between the existence of albumen in the urine and this form of pneumonia was altogether different from what we might *a priori* have expected. Among the last cases of this disease, which came under my notice, were those of No. 1, John Kealy, aged 44, admitted into the Whitworth Hospital, June 11; No. 2, James Mullen, aged 18, admitted into the Hardwicke Hospital, June 28; and No. 3, Michael Leonard, aged 9, admitted into the Hardwicke Hospital, June 5.

In none of these patients was there any reason to suspect the previous existence of any renal disease, and the examination of the urine gave the following results:—No. 1, had been for some time suffering from rheumatism, when he was attacked with pneumonia in the inferior portion of the left lung; when admitted, there was no evidence of albumen in the urine; its sp. gr. was 1·026. He was for some days under treatment before there was any physical sign of improvement in the lung, or any sensible alteration in the urine. On the 17th the bronchial breathing became less loud, and albumen appeared in the urine, which gradually continued to increase for some days; it then again decreased in quantity. Although there remained no physical sign of disease in the lung, yet this patient did not regain his strength nor lose his cachectic appearance, and the albumen continued to appear in the urine. In this condition he left hospital on the 4th of July. No. 2 was admitted with solidification of almost the entire of the right lung; the disease appeared to have begun at the apex; there was no albumen in the urine: on the third day the lung began to clear, and albumen appeared in the urine, and continued for some days; it had completely disappeared long before he was declared convalescent. No. 3 was admitted with pneumonic solidification of the lower half of the right lung; there was no albumen in the urine; in forty-eight hours vesicular respiration had in part replaced the bronchial breathing, and albumen appeared in the urine; on the following day the patient had suffered a relapse; the bronchial breathing had returned, and the urine was no longer albuminous; the patient after this recovered, although very slowly, but the albumen never reappeared in the urine.

In other cases there was no evidence of albumen in the urine throughout the entire illness. I have had no opportunity, since the publication of Dr. M'Dowel's essay, of examining the urine in the last stages of this form of pneumonia.

I would hence infer that the amount of albumen which may appear in the urine of a patient affected with this form of

pneumonia, is not indicative of the amount of pulmonary disease, nor does its accumulation prove the extension of the pneumonia; but that, on the contrary, from the appearance of albumen in the urine in such cases, we may anticipate an amendment in the original disease; and that, from a sudden disappearance of albumen from the urine we may dread a relapse of the pulmonary affection.

When such symptoms exist during life, we are not to be surprised if, when these cases prove fatal, diseased appearances are found in the kidneys; there is, perhaps, no organ in which we are so little able, with any degree of accuracy, to determine from the appearances the duration of the disease. This circumstance and the knowledge that we can, by simple injection of the organ, so closely simulate some of the forms of Bright's disease, render it probable that the renal affection is, in many instances, contemporaneous with, if not subsequent to, or consequent on the pneumonia. If this view be correct, it would be probable that the same blood disease which affected the lung would in some instances simultaneously affect the kidney also, but that the evidences of this latter affection would not be so early manifested. Examples of this form are not rare; the previous absence of dropsy, and of all the usual symptoms of renal disease, warrant us in supposing that such could not have existed before the pulmonary affection, while the post-mortem appearances place beyond doubt their contamination for some time before death; nor is this appearance of blood-contamination confined in those cases to the kidneys; the same thing is often observable in the liver and spleen in the "*oleo-albuminous*" deposits which we find therein. But in other instances it would appear that the lung recovered itself by means of the albuminoid matter passing off by the kidneys, as in the cases above quoted. It is probable that this attempt is made in all such cases, but that, in some instances, having failed, it is succeeded by certain organic changes in the kidney. These sources of failure may arise from the great amount of blood-contamination which originally took place, i. e. from the great virulence of the disease; 2ndly, from the extent or number of the organs attacked; 3rdly, from the patient being in a previously enfeebled condition; and, lastly, from neglect or unsuitable treatment.

Perhaps one of the best marked features of this disease is, "its not being amenable to any of the usual modes of treatment." I need not here allude to the more than inefficacy of abstraction of blood in any form to meet its requirements. The treatment by tartar emetic is equally inapplicable; and

the mercurial plan of treatment, as it is termed, is also powerless to control this formidable affection. The treatment by the internal use of oil of turpentine, so advantageous in the suppurative stage of vesicular pneumonia, does not appear to have any influence on this form of disease. Wine and the usual diffusible stimulants support the patient's strength and add to his vital energy, and so are of use, but they seem to have no specific power over the disease, such as is evidently exercised by the sulphate of quina. During the last eight months I have treated with quina all the cases of this form of pneumonia which I have witnessed, and I have had the opportunity of observing several cases similarly treated by Dr. Corrigan in the Hardwicke Hospital. On the 19th of April last Dr. Corrigan presented to the Pathological Society a specimen of this form of pulmonary disease, when he took occasion to allude to the efficacy of quina in its treatment. The result of this treatment has been that, of the cases which came under observation before effusion had taken place into the bronchial tubes, none proved fatal; while some few recovered, even after the lips had become blue, the face congested, and mucous râles were audible in the bronchial tubes.

The beneficial effects of quina in the advanced stages of pneumonia, when the patient is old, and the constitution debilitated, have long since been recognised; and we occasionally find authors alluding to the use of this drug as indicated by, or as a remedy for, some one particular symptom; thus Dr. Todd says:—"In the decidedly typhoid cases, I need scarcely say that the free use of stimulants is of essential service, and it is often of immense advantage to give quina freely, the special indication for this latter drug being profuseness of sweating." And Dr. Morehead, in his recent work on the Diseases of India, recommends the use of quina in pneumonia "characterized by its coexistence with fever of remittent type;" and Professor Wood recommends "the addition of sulphate of quina when hectic symptoms appear." But the advantages to be derived from the early use of this medicine in this particular form of pneumonia have not been sufficiently dwelt upon. The average dose administered was five grains every three hours (in a few very severe cases ten grains were given for the first dose); in some instances it was deemed advisable to continue its use in this quantity for several days; yet in no instance did I observe any untoward result to arise. The first indication of recovery was, in general, a marked alteration in the character of the pulse, which also decreased in number; while, as to physical signs, the rapidity with which the bronchial breathing and extreme

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dulness disappeared from an entire lung, or portions of both, was truly surprising. It was not found necessary, or deemed advisable, in any instance to precede its administration by the use of a purgative or emetic, as advised in other instances. In the case of Leonard, nine years of age, who was admitted with vomiting, I at first hesitated, but the symptoms of the disease were so well marked, and the entire of one lung was so deeply engaged, that I ordered it to be given in two-grain doses every three hours; after the third dose the vomiting ceased, and did not recur; and on the fourth day the boy was convalescent.

And, if the pathology of this disease be such as I have endeavoured to describe, the treatment by quina is that from which, of all others, we would naturally expect the greatest advantage. The action of quina "is exerted primarily in the blood (Headland), and not on the nerves:" Tiedemann and Gmelin found it long ago in the blood of a patient to whom it was administered; and Cochran, in a late Number of the Charleston Medical Journal, points out in what its action consists by detailing its effects on the uterus. He says:—"In women under its influence, if they were menstruating, they complained of increase. In some cases it hastened the flow if given just before the period; it provoked their return when suddenly suppressed by cold, &c. An important circumstance connected with the action of quina, and which may throw some light on its mode of action is, that, if administered in large doses, and frequently repeated, it defibrinates the blood, rendering it fluid and incoagulable; this fact has been clearly established by the experience of Baldwin, Melier, Briquet, and other respectable authorities"[a].

[a] Since these observations were in type, Dr. Corrigan has published, in "The Dublin Hospital Gazette," some cases of asthenic vesicular pneumonia, which he treated with quinine. Dr. Corrigan considers that its mode of action is by stimulating the capillaries of the lung, and that its action on the spleen is also similar.

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yours sincerely
W. F. Montgomery

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

An Exposition of the Signs and Symptoms of Pregnancy: with some other Papers on subjects connected with Midwifery. By W. F. Montgomery, A. M., M. D., M. R. I. A., &c., &c. Second Edition. London: Longman and Co. 1856. 8vo, pp. 706.

We congratulate the profession on the publication of a new edition of Dr. Montgomery's valuable book, or rather on the publication of an almost new work; for not only is it double the size of the former edition, but it has undergone a thorough revision, and has been enriched with the accumulated personal observations of one of the keenest and most thoughtful men in the profession, who has brought to bear upon the questions at issue an amount of information from all sources, so that we are saying little when we pronounce, it will be *the* authority on the subjects upon which it treats. To the beautiful plates in the former edition the author has added others, of not less value, and also several illustrative woodcuts.

Regarding the volume as virtually a new book, we shall treat it as such, and proceed to lay before our readers an analysis of its contents.

Chapter I. is occupied by general observations on the state of the female system during pregnancy; and, in our opinion, this is not the least important chapter in the book, involving, as it does, a view not only of the general condition of the system with its various changes, but of numerous organic reflex irritations. The general state is one, not of inflammation, but of a condition analogous to inflammation, i. e. one of exalted vital activity; the nervous and vascular systems exhibiting this change in a marked degree, whilst the local consequences of impregnation are still more appreciable, and not

less wonderful. The secondary irritations, whether proceeding from mechanical pressure, or some more general cause, have latterly attracted much attention, and have received due consideration from Dr. Montgomery. His observations on the œdema of pregnancy are very judicious:—

"When the uterus has acquired considerable size, it begins to interfere with the circulation, especially that through the veins, and, by its pressure upon the trunks which return the blood from the lower extremities and parts within the pelvis, gives rise to anasarcous swellings of the feet and legs, and sometimes to more formidable effusions within the cavity of the peritoneum. Varicose veins and hemorrhoidal tumours are probably to be ascribed to the same cause, though, perhaps, the latter would be with more propriety referred to congestion of the hemorrhoidal veins from the torpid and constipated state of the bowels. Having so far assigned a mechanical agency in the production of these anasarcous swellings which so frequently occur in pregnancy, it must be observed that, although they may thus be, to a certain extent, satisfactorily accounted for in the lower extremities, there is frequently evidence of some more general cause operating in the system, probably the increased activity of the exhalants, which is indeed a condition of these vessels necessary for the performance of a very important process essential to the well-being of the fœtus, namely, the secretion of the liquor amnii. Without reference to some such general action, we could not satisfactorily explain the production of œdema of the upper extremities and face which sometimes accompanies pregnancy, as in a lady seen by the writer some years since, in the ninth month of her first pregnancy, whose case was, for many reasons, one of great interest and anxiety: about the middle of the eighth, swelling of her feet and legs began, and continued until it reached half-way up the thighs; then her hands become similarly affected, she could hardly close them, and was obliged to put off her rings; her face at length became affected, and to such a degree that when she got out of bed in the morning her eyes were scarcely visible. I may just observe here, that when œdema takes place in such forms as these, it ought to claim our most serious attention, as it is, in general, connected with a state of the vascular system which, if suitable depleting measures are not previously adopted, will probably give rise to convulsions at the time of labour, of which the case of the lady above alluded to was a well-marked instance. If, under such circumstances, the urine be found albuminous, and the patient complains of pain in the head and dazzling of the sight, the risk of convulsions is still greater; though they do not necessarily take place, as I have seen several cases in which all these and still more unfavourable indications were present, and yet the labours passed over without any convulsive attack. It must not be forgotten that this state of the system may be connected with disease of the kidney."

Having noticed both the advantages and disadvantages of the anterior inclination of the enlarged uterus, the author recommends, for the relief of the latter, a broad belt with India-rubber straps let into it, and so arranged that it will raise the uterus a little, and carry it at the same time upwards and backwards.

The disposition to plethora, when excessive, is of course best relieved by antiphlogistic measures, and the disorder of the digestive system, by a carefully regulated diet. In some degree the vomiting may be regarded as the correction of errors of diet:—

"The popular prejudice on this subject is, that a pregnant woman, *having two to feed, ought to swallow a double supply of nutrition*, while nature declares the exact contrary by disposing her to reject a large proportion of what she takes, and making her averse from many of the richer kinds of meat, which at other times she would eat with pleasure. Moreover, experience has shown that the perfection of the fœtus, either as to health or size, depends very little on the quantity of nutriment supplied to the mother during gestation; hence the attempts that have been made to restrain the growth of the child by using depleting measures and diminishing the food of the mother have not only signally failed in accomplishing the object intended, but the children have been, in some of the trials, unusually large and well thriven, which, as is well known, not unfrequently happens also in the case of women delivered in conditions of the most extreme debility and prostration, arising from disease."

The author contrasts the indolent life of the higher classes of society with the activity of that passed by the peasant female in the pursuit of her ordinary daily avocations, which engage her energies and attention, even to the very "hour of nature's sorrow;" and remarks, how the pernicious habits of the former class tend to induce many of the evils sometimes attendant upon utero-gestation and parturition, from which the latter, by an opposite mode of existence, is exempt. In illustration of the easy accouchements habitual to the peasant female, he quotes some lines of Vanier, and subjoins the following elegant translation by himself, which we cannot refrain from inserting:—

"Who, teeming with the soon-expected birth,
Weeds the young corn, and harrows down the earth;
Patient of toil, with careful hand she twines
And trains the tendrils of the struggling vines,
Intent on labour; nor as yet forbears
Till pains o'ertake her midst her rustic cares—
Her bosom's load so easily she yields
One might suppose she found it in the fields."

We may here observe, notwithstanding we are ourselves of opinion that this beautiful picture is not altogether overdrawn, and that sometimes with this class of female nature's hour of trial has scarcely commenced e'er "it subsides in the embrace of joy;" still, it must be remembered that field labours, followed from very early childhood, and persisted in to puberty and subsequent to marriage, are not always conducive to easy accouchements, though they may be to perfect health. That form of pelvis termed "masculine" is not unfrequently met with amongst country primiparæ; and yet more frequently have we observed with these individuals a preternatural development of the muscles which are in relation to the interior surface of the pelvic canal. Now, although even with the former condition of pelvis, parturition *may* terminate safely, yet, neither with it nor the too muscular condition of pelvis, will it be *remarkably* easy.

Dr. Montgomery points out the danger of over-exertion as tending to produce abortion; and also speaks of the ill consequences likely to ensue when pregnant women habitually frequent crowded assemblies, where not alone does foul air exert its baneful influence upon the mother's blood, and thereby poison the supply from which the fœtus ought to derive nourishment, but this evil state of things is aggravated by the style of dress which such assemblies lead to the adoption of. In alluding to the ridiculous and pernicious habit of tight lacing, Dr. Montgomery considers that ladies would do well to remember the origin of the word so generally used amongst them to designate pregnancy, viz., *enceinte*, which, he informs us is derived from the Latin word *incincta*, a term with the ancient Romans employed to signify a pregnant woman; because the law compelled them to remove their ordinary *cinctus* or girdle, as soon as they became in that state.

Still more important is it to guard against painful impressions upon the nervous system, and the profession is indebted to Dr. Montgomery for having, in his former edition, called special attention to this matter. He has now still further developed the subject, and added thereto both recorded and original observations. No one can doubt that pregnant women should be carefully shielded from tales of horror, or frightful or disgusting objects, for their own sakes, lest the shock to the nervous system should entail on them premature labour, dangerous nervous seizures, or even death. As in the instance which he quotes from the "Histoire des Accouchemens," of Sue, when the prediction of a gipsy, that a woman would die during pregnancy, created such an impression upon her mind

as absolutely to cause death. How far the fœtus may be affected by such impressions is, perhaps, doubtful as yet, but it cannot be considered impossible, or even unlikely, that it may be thus acted upon, when we consider the intimate relation between the fœtus and the mother:—

"And this, the more especially as many instances have been witnessed in which the child *after birth* has suffered seriously by being suckled by a woman labouring under some strong mental impression: thus convulsions in the infant have been induced by a fit of passion in the nurse; and the same result followed in a case in this city, some years since, in which a lady suckled her child soon after receiving a great shock, by having her husband brought home to her wounded in a duel. Such consequences it is altogether inaccurate to attribute to the influence of the mother's imagination, while they are truly effects of physical causes of a very obvious kind, and in no way fairly ascribable to the power of imagination: but to whatever conclusion we may come, as to the precise agency in such cases, it will be always safe and prudent to act on the presumption that such consequences *may* follow certain causes, from exposure to which it may be in our power to save the pregnant woman; for 'although,' to use the words of Morgagni, 'I do not approve these things (that is, the absurd stories), there are cases wherein it seems to me to be very hard to depart totally and altogether from that opinion which is common to the greatest men.' In a case already quoted from this celebrated writer, a mental impression was quickly followed by the death of the child; and if such an influence can thus destroy its life, it is surely not unreasonable to admit that it may have the power of modifying organization."

As an illustration we extract the following case:—

"Mrs. N., the wife of a clergyman, came to town for her confinement, and a lady who was with her told me that she had been very uneasy in her mind from an apprehension that her child would be born with a deformed hand; her anxiety had been induced by the following occurrence. The mistress of a school which she frequently visited had been delivered of a child with a deformed hand; and as Mrs. N. was known to be, at all times, very nervous and easily alarmed, and was then a short time pregnant, great pains were taken to prevent her seeing the child, except with such precaution as would preclude her observing the hand: it happened, however, one day that she walked unexpectedly into the room where it lay asleep, and sat down by the cradle to look at the child, which at the moment happened unfortunately to have the deformed hand fully exposed to view: she felt greatly shocked, and often afterwards alluded to what she had seen, and expressed her conviction that her child would be born with a similar deformity. Very soon after her delivery she expressed an anxious wish to see her infant, which was brought to her wrapped up in a flannel, in the usual way: she in-

stantly drew out the child's arm, and exclaimed with a look and tone of horror, 'Oh, the dreadful hand!' and there it certainly was, with exactly the same deformity as that which had excited her disgust and terror, several months before. The deformity consisted in the absence of one finger, and the complete union of the middle and third fingers, the united extremities of which were covered by one nail, presenting a very disagreeable appearance indeed."

As still further bearing upon this point, allusion is made to the observation of Esquirol, relative to the frequency of nervous disease, and even absolute lunacy, amongst those born during the periods of the French Revolutions. A case, also by the same author, is quoted, of a healthy pregnant woman who had been greatly terrified by the conduct of her husband during a state of intoxication, whose child, up to the eighteenth year, continued subject to panic terrors, and subsequently became maniacal; and the well-known terror evinced by James the First at the sight of a drawn sword is mentioned, which Sir Walter Scott asserted was ascribed to the murder of Rizzio having been perpetrated in the presence of his mother, whilst pregnant of him. That particular impressions may not only be conveyed from the mother to the fœtus in utero, and so affect the issue mentally or physically, but that these impressions may become so permanent as to exercise an influence, both in man and the lower animals, upon subsequent offspring, even from another source of impregnation, examples are not wanting; amongst others, we find the author gives the case observed by Dr. Simpson, of a white woman who was first married to a negro, and who produced a child, after a second marriage to a white man, exhibiting distinct traces of negro peculiarity; and, on the authority of Dr. Dyce, a Creole woman who bore fair children to a white man, and had afterwards, to a Creole man, children bearing much resemblance to the white man. However curious, in a purely physiological point of view, the consideration of this question may be, there can be no doubt but that "a correct solution" of it "would be of immense importance in the history and treatment of disease." Could syphilis, for example, having been once communicated to the system of a female, remain there permanent, so as to affect several ova, and become manifest in future offspring, the product of the impregnations of those ova by a perfectly healthy man? We see no reason why such might not be the case; and Dr. Montgomery says—"My belief is certainly in favour of the affirmative. Such was the opinion I expressed in 1837, and further experience and observation have, I think, shown *to be a fact*, what I could then only venture to say *I believed to be likely*." In

corroboration of this opinion, Dr. Montgomery brings forward two incontrovertible cases; one reported by M. Vidal, in the "Gazette des Hôpitaux," of November 6, 1841, and another in M. Cazenave's "Traité des Syphilides."

Still further in connexion with this subject, Dr. Montgomery makes mention of a fact, the observation of which he had once deemed original, but now finds it to have been made long since by Drs. Gardien and F. H. Ramsbotham, viz.:—

"A woman is married to a man who has latent constitutional syphilis, by which she is infected, but will show no symptoms of the contamination until she conceives, and perhaps miscarries, and then the taint is manifested by the development of secondary symptoms in the course of a few weeks, as if the infection was at first *communicated and confined to the product of the ovary*, and the general system became thence contaminated; or perhaps another explanation may equally apply, and we may suppose that the new condition and altered action of the generative apparatus, had the power of rousing up and rendering active the latent poison lurking and dormant in the woman's system, as we see occasionally happens in patients constitutionally disposed to phthisis. Whichever of these explanations may be nearest to the truth, there can be no doubt of the frequent occurrence of the fact."

Out of the liability of the system to external impressions, and their permanency, arise several important questions, which have been ably touched upon by Dr. Montgomery, and for which, as well as for the management of pregnancy, we must refer the reader to the work itself; whilst we hasten on to Chapter II., on "the investigation of pregnancy; the legal and social relations involved in it; different sources of evidences or proofs," &c. If, on the one hand, it is not difficult, in ordinary cases, to decide upon the existence or non-existence of pregnancy, it must be confessed that cases very frequently occur in which this decision is extremely difficult, and that from opposite causes: it may be the earnest wish of the patient to have children, or she may have special reasons why it is most desirable, and, being a married woman, there is no *à priori* reason to doubt her statements: on the other hand, she may be most anxious and interested in concealing her condition, and desirous of misleading the medical attendant, and in such cases not an atom of belief can be attached to anything she says; and yet much of the ordinary evidence of pregnancy depends upon the testimony of the patient. Again, the visible evidences of pregnancy may be produced by disease, and if the practitioner, discarding the testimony of the patient as being intended to

deceive, be contented with a superficial investigation, he may fall into a grievous error, which may affix a stigma of guilt upon an innocent woman, and blight her future life. Of this Dr. Montgomery relates two melancholy cases. Moreover, the individual signs of pregnancy—with one exception—may be produced by other causes, or may be absent notwithstanding pregnancy, and unless we are careful to form our judgment upon the whole case, we may easily make a mistake. Now if the case be surrounded with so many natural and artificial difficulties, how very absurd it must be to trust the decision of the question to a jury of matrons in case of a prisoner "pleading pregnancy in bar of execution." In former days they may have been as adequate as any other jury, but surely not now; and yet the following case is related by our author:—

"On the 25th September, 1847, a wretched epileptic woman, Mary Anne Hunt, was tried before Baron Platt, and, having been found guilty of murder, she pleaded pregnancy in stay of execution; whereupon the judge ordered a jury of matrons to be empanelled, which having been done, he informed them that, '*They were summoned to that court as a jury of matrons, to perform a very solemn duty, which was to ascertain whether the prisoner then standing at the bar was big, with a quick child, or not. They would use their best skill to ascertain that fact, and, having done so, it would be their duty to return a verdict on the oath they had taken. If they should think it necessary to have the assistance of a surgeon, they were at liberty to do so.*' It appears they did not think such assistance necessary, and *in about half an hour* returned a verdict that the prisoner was not quick with child, that she had not a living child within her. On which announcement the judge said:—'Let the prisoner be removed; the law must take its course.' Terrific words! stern prelude to an ignominious death!—for the mother, the just reward of her wickedness; but on what ground could be justified the judicial murder of the unborn innocent, had this sentence been carried into execution? which, however, fortunately for our humanity and justice, it never was. Strong representations were made on the subject to the Home Secretary, who directed that she should be examined by three medical men, who pronounced her to be pregnant. Her execution was, therefore, stayed: on the 25th of December she fell into labour, and on the 28th she was delivered, in the prison, of a fine, healthy, *full-grown*, male child, and her sentence was commuted to transportation for life. It is almost superfluous to observe, that when the jury of matrons, on the 25th of September, declared this woman not to be quick with child, she had absolutely *completed six months* of her pregnancy."

Many cases are adduced by Dr. Montgomery to show the

difficulty of arriving at a satisfactory decision, and the liability to mistake from various causes, and certain judicial circumstances, which make the decision of great importance.

The signs upon which our judgment is to be formed may arise either—1. From the general state of the constitution; 2. Different organic sympathies; 3. The increase of the abdomen; 4. The contents of the uterus; 5. In some cases from substances discharged from the uterus; and 6. We may have to decide from a post-mortem examination whether the woman is or has been pregnant. The first and second grounds are *presumptive*, the third *probable*, and the fourth, fifth, and sixth, *unequivocal*. Still, there are circumstances connected with the presumptive and probable signs which may render a decision difficult, and—

"Under such anomalous conditions as these, or in ordinary cases, where all is proceeding in the regular and natural order, there are some general considerations applicable to all, which should always engage our attention when we seek to assign their proper value to symptoms, whether viewed separately, or in conjunction:—

"1st. The interval at which they have appeared after the supposed time of conception.

"2nd. The order or succession in which they have presented themselves.

"3rd. Their value, as certain and unequivocal, or as uncertain and equivocal.

"4th. Their correspondence with each other.

"5th. The length of time they may have been in existence.

"A. With reference to the period after conception at which it may be expected that a woman will begin to experience any of those constitutional or other changes which would suggest the idea of pregnancy, it may be stated that, in general, this will not happen until one or two menstrual periods have passed by, without the appearance of that discharge; but there is much diversity in this matter. I shall have occasion, by-and-by, to notice the case of a lady who began to be sick the day after she was married, and her delivery took place exactly nine months afterwards. I have since seen another, who was married on Monday and began to complain on Saturday; she was delivered, eight months after, of a child, evidently wanting a month of maturity. In some instances I have known the first intimation supplied by some uneasy or painful sensation; a patient of mine has frequently told me that, before she had any other evidence of being pregnant, she became aware of it, from a peculiar burning sensation, which she distinctly referred to the situation of one or other ovary.

"B. The order in which symptoms present themselves should always weigh with us; as certain deviations in this respect will often, and at once, show us the doubtful character of the case before us: thus, for instance, we may have suppressed menstruation, morn-

ing sickness, mammary development, and an enlarged abdomen, but the order of their occurrence may have been exactly inverted, and no pregnancy exist.

"C. With regard to certain or unequivocal symptoms, of which there are but three, viz. :—

"Active movements of the child unequivocally felt by another;

"Its presence in utero ascertained by *Ballottement;*

"The pulsations of the fœtal heart.

"If any one of these be ascertained beyond doubt, it settles the question: but then we must remember that they are decisive only on the positive or affirmative side; if certainly recognised, pregnancy is indisputably proved, but their absence, or rather our not being able to discover them, would be no proof that pregnancy did not exist.

"Uncertain or equivocal symptoms may be used as guides when they are found associated in considerable number; when manifestly resulting from sexual intercourse; when not resulting from morbid influence; when they appear as an unexpected, new, or unusual event; when they are not fleeting or transitory, but of a certain duration; and even accidental idiosyncrasies are useful as corroborative indications, if they have been experienced before, under similar circumstances.

"D. The correspondence between the symptoms or the want of it, is often very valuable as a guide; as when, for instance, a woman who has had menstruation suppressed for seven or eight months, with morning sickness, and other equivocal indications of pregnancy, is found without the mammary changes, and with a flat belly.

"E. The length of time during which the existing symptoms have been in existence; as when a woman has had great abdominal enlargement and supposed fœtal motions for ten, twelve, or fifteen months."

We regard these two introductory chapters as most interesting, and executed in a very masterly manner: they contain a great deal of new matter, part of which we have quoted, and they deserve the careful study of every practitioner.

Chapter III. commences a review of the individual signs of pregnancy, and includes suppression of the menses, nausea and vomiting, and salivation. Suppression of the menses is always a somewhat doubtful sign, because we have to depend upon the statement of the patient, and also, because conception has repeatedly occurred before menstruation, or after menstruation has apparently ceased, or when it has been suppressed for some time, of which many cases are quoted by our author; and on the other hand, menstruation may occur after conception.

"Such anomalies, having been proved to exist, should always

be taken into account, to guard us against error; but it should be acknowledged, as a general rule, to which there will be found but very few exceptions, that when suppression of the menstrual discharge takes place in a healthy woman, previously regular in its returns, who has not sustained any accident, and, continuing for some months, is not attended with any impairment of health, it ought to be regarded as a circumstance strongly indicative of pregnancy, especially if accompanied by other ordinary symptoms of that state; and, on the other hand, considering that menstruation continues in only a very few instances after conception, the regular appearance of that discharge ought certainly to be esteemed a forcible presumption against the existence of pregnancy; even though there should be present, other apparent indications of that state, ever remembering, however, that the cause in question may be one of the very rare exceptions."

Similar doubts attend nausea and vomiting, and salivation; they are not always present, and they may be owing to other causes, yet, along with other symptoms, they form an additional link in the chain of evidence.

Chapter IV. is occupied with "mammary sympathies." The swelling of the breasts arising from pregnancy may be observed about the end of the second month, but various considerations may induce caution in coming to a conclusion.

"We must recollect that the changes of form and size may be the result of causes unconnected with conception. In many women, the breasts enlarge merely in consequence of marriage, and the habits thence arising; in others, it may happen from the person becoming fat; it may be caused by accidental suppression of the menses, or their retention by an imperforate hymen, or other causes capable of distending the uterus, under which circumstances, especially in women of sanguine temperament, the breasts often become both hard and painful."

Gardien states that swelling of the breasts is not observable in women who menstruate during gestation, but in a case which came under our care the enlargement was just the same as usual.

But the most valuable change which takes place in the breasts is the alteration in the areola. Dr. Montgomery has given a most minute and careful description of it, and pointed out its essential characters, and at p. 107 has added a note, of the truth of which we can bear testimony, and which is very curious.

No doubt that a perfectly developed areola is a most valuable sign, but the negative side of the question must not be forgotten. For example, Dr. Montgomery shows that it may not be deve-

loped till a late period of pregnancy, or it may be deficient in colour; or it may decline when the fœtus is blighted, or there may be a slight change in the areola, resembling faintly the alteration of pregnancy in dysmenorrhœa.

"Now as to the colour alone, we may adopt this belief, that where we find a circular disc of a dark-brownish shade around the nipple, especially in a woman of light hair and fair complexion, even though it should be unaccompanied with the other changes natural to the part, it affords very strong presumptive evidence of a present or former state of pregnancy; but when so accompanied, it is a mark of great value, and in my experience has never yet deceived me; and I certainly never saw any other condition of the part, produced by disease, which could possibly be mistaken for it. At the same time, it should be observed that the areola does not always, in pregnant women, present all the characters I have described as belonging to it, nor does the perfection of its distinctive characters seem to depend, so much, on the degree of change and increase of vital activity in the breasts, as on some constitutional peculiarity; for I have repeatedly observed the ordinary or general mammary changes take place with great energy, so that the breasts themselves were greatly altered, and yet the areola exhibits little or no change; and, *vice versâ*, the areolar signs are sometimes very distinct and perfect when the breasts are otherwise but slightly affected,—see case of M. S., to be related presently: and I have not unfrequently found both the general and special mammary changes much more remarkable in one breast than in the other. I have seen it at the time of labour presenting the dark circle alone, without the prominence of the glandular follicles, but I never saw an instance of their development, in conjunction with the other changes already described, without the concurrence of pregnancy: their absence, therefore, ought not to decide our opinion against the existence of that condition, though their presence would be with us a very convincing proof of previous conception: we should also be cautious in being influenced by the condition of this part, before the period stated as that at which its characters are in general developed and perfected."

Dr. Montgomery gives four beautiful coloured plates of the areolar changes, at the third, fifth, seventh, and ninth month of gestation. These drawings were taken, during the second pregnancy, from the right breast of the same patient, from whose left breast, the former series were copied; an opportunity is thus afforded of verifying a fact previously mentioned by the author, "that both the general and special changes are frequently found much more remarkably developed in one breast than in the other." We have also a well-executed drawing of the areola of an albino in the seventh month of

pregnancy, on which all the features described by Dr. Montgomery, as prominent at that period, are distinguishable, with the exception of the colour of the areola, which is of a rose tint, and not brown. The irides of this woman were of the same hue as the areolæ.

The value of milk in the breasts as a test depends upon its being found in connexion with other symptoms of pregnancy, but, as Dr. Montgomery observes, it is a sign which we cannot expect to make generally available as a guide in forming our opinion in a doubtful case.

Chapter v. is on "quickening and the motions of the fœtus." That the fœtus is "quick" from the first moment of its existence, no physiologist will now deny, and we join Dr. Montgomery in his wish that the law were brought into accordance with science. As a sign of pregnancy, it has this disadvantage, that we depend upon the report of the patient, unless we can feel the movements ourselves, and she may intentionally or unintentionally deceive. Nay, as Dr. Dewees has observed, we may deceive ourselves as to the movements. And, on the other hand, Dr. Montgomery has adduced examples of patients who lost the sensation of motion, although the child was alive.

Quickening occurs, according to Dr. Montgomery's experience, between the end of the twelfth and sixteenth weeks after conception, or between the fourteenth and eighteenth week after the last menstruation; in some few cases it occurs at the same period in subsequent pregnancies; but, as a general rule, some latitude must be allowed. Dr. Montgomery met with one case of quickening as early as the tenth week, and others not till the sixth and seventh months.

Chapter vi. treats of the enlargement of the abdomen and state of the umbilicus, and, simple as the diagnosis on this ground may appear, it is by no means unusual to find mistakes made by those who ought to know better.

"When the enlargement proceeds from a gravid uterus, and four months of pregnancy have elapsed, if the patient be placed lying on her back, with the shoulders a little raised, and the limbs at the same time drawn upwards, so that the thighs shall be in a state of semiflexion on the trunk, and the abdominal muscles thereby relaxed, if the woman be not very fat, we shall be able to feel and trace the outline of the gravid uterus, at a height in the abdomen proportioned to the period of pregnancy; and even though we should not be able, from the fatness of the woman, the tension of the abdominal parietes, or any other cause, to feel distinctly the uterine tumour and define its circumference, we shall, at least, ascertain

that the cause of the enlargement is something which renders the abdomen much more solid to the touch than is natural to that part, and an examination per vaginam detects the coexistence of the changes in the uterus, necessarily accompanying gestation; while, at the same time, the general health of the woman is found unaffected by any symptom of disease.

"When the increased volume of the abdomen is the result of morbid conditions, not affecting the uterus, as disease of the liver, spleen, &c., an ovarian tumour, or ascites, we shall, in general, without much difficulty, form our diagnosis from the history of the case, the length of time the enlargement has existed (which may have greatly exceeded the whole term of gestation), the general diseased condition of the system, the character and situation of the tumour, the state of the umbilicus and breasts, the total want of correspondence in the symptoms and conditions of the case, if it were pregnancy; and, lastly, a vaginal inquiry assures us that the uterus is not enlarged. And yet some almost incredible mistakes have been made. Smellie tells of a girl of twelve years old, whom he was called to see, under the idea that she was eight months pregnant. She had been visited and examined by several medical men, one of whom had offered to attend her gratis, and others had made great interest to be present at her accouchement. The matter had been advertised, and the matron got money from many who went to visit the girl. It was a case of enlarged liver.

"If the uterus itself be distended, the difficulty of forming our opinion may be considerably increased, but, even then, a careful consideration of the points just referred to, and a vaginal examination, will, in almost every instance, enable us to decide correctly: one class of such cases has been already noticed."

With regard to the dark line running down from the umbilicus, and the areola which sometimes forms around it, as we are indebted for our information primarily to Dr. Montgomery, we shall give his own description:—

"In a large proportion of cases of pregnancy, there is observable, along the middle of the abdomen, a coloured line, of about a quarter of an inch in breadth, extending generally from the pubes to the umbilicus, but, not unfrequently, thence to near the ensiform cartilage; its hue is some shade of brown, but sometimes partaking of the yellowish tint of ochre, and sometimes amounting to a full-bodied dark umber. In several instances, I have observed, in addition to this line, a dark-coloured disc occupying and surrounding the umbilicus, and to which we may not improperly apply the name of umbilical areola. It has an area varying from an inch to an inch and a half in diameter, and in general it varies in depth of tint according to the colour of the hair, eyes, and skin of the woman, as do the dark line and the mammary areola; but, unlike the latter, there is no turgescence, or elevation of its surface above the surrounding skin;

neither are there on it any prominent follicles. Like the other analogous colorations resulting from pregnancy, this areola is liable to many varieties, having, in some cases, the well-marked characters already spoken of, while in others it is merely like a dirty patch or soil on the skin, without any definite form, or distinct colour. These two indications, although so closely identified in many respects, are not, as may be inferred from what has been already stated, necessarily found together, nor, when so formed, are they always equally marked. The dark line frequently exists without the umbilical areola, but I have never seen the latter unaccompanied by the former: but if the areola is of less frequent occurrence than the dark line, it is of higher value as a positive indication; inasmuch as, so far as I know, it is formed only in pregnancy; while the dark line has been observed in female cases altogether unconnected with that state, and also in males.

"When both signs coexist, their relation is this: the dark line, as it ascends from the pubes, when it arrives within an inch, or less, of the umbilicus, sweeps off in a curve towards the left, and merges into the circumference of the areola, and when again leaving it, to ascend towards the ensiform cartilage, it is observed to issue on the opposite, or right side, curving towards the middle line, and then running straight upwards. These abdominal discolorations are most distinct in women of dark hair and eyes, and strongly coloured skin, and at advanced stages of pregnancy, and soon after delivery; the dark line, however, I have seen so early as the second month extending from the pubes to the umbilicus, and in another case, at six months, it reached nearly to the ensiform cartilage: the umbilical areola I have not seen well marked, except at more advanced periods."

Chapter VII. is occupied with a very careful investigation into the changes which take place in the uterus; the alterations in size and shape of the os and cervix uteri, the size of the uterus, its contents, situation, and consistence; and is illustrated with excellent woodcuts. As might be expected, the information given is as precise as possible, and facts illustrative of the positive and negative evidence amply supplied.

Chapter VIII. opens with judicious observations on the different modes of examination, and then describes the value of each. Dr. Montgomery does not attach much value to external repercussion, but agrees with other writers, that "ballottement," when distinctly felt, is positive proof of a fœtus in utero, although not necessarily a living one. The directions for performing the operation are very clear, from the fourth to the sixth month being considered the best time.

We agree with Dr. Montgomery that, in general, little can be expected from auscultation until the fourth month, and perhaps not until somewhat later; and also, that the stethoscope

is preferable to the naked ear, not merely from delicacy, but for the sake of greater accuracy. The rules laid down for examination, and the cautions given, are excellent: from their neglect we have more than once witnessed failure. The uterine souffle is to a certain extent uncertain as a test; it cannot always be heard, and it is sometimes admirably imitated in tumours:—

"Making all due allowance for the want of positive value, or conclusiveness, under which the existence of this sound must be acknowledged to labour, it must still be regarded as of considerable importance, when heard in conjunction with other presumptive signs of pregnancy; under which circumstances it not only acquires increased value in itself, but tends to confirm the other indications; but, even so, we should yield our judgment with reserve, and cautiously repeat, again and again, our examination: but when this sound is met with, where our judgment, independently of its presence, would either remain in great doubt, or incline to a negative conclusion, it ought to have very little influence in deciding our opinion; taken by itself it has little or no practical value as a sign of pregnancy."

On the other hand, the pulsation of the fœtal heart, when it is heard, is not merely evidence of pregnancy, but proof: proof that the patient is pregnant of a living child, and this, of course, will in any case truly interpret all the other evidences. It is independent of the testimony of the mother; it cannot be simulated by her; it is not imitated in disease, though its frequency may be influenced by it. But, of what value is the negative evidence, i. e. is the absence of pulsation a strong evidence of the non-existence of pregnancy? It will not be heard if the child be dead, and there are other cases in which it is inaudible, though the child be alive.

"The number of cases of pregnancy advanced beyond the fifth month, and the child living, in which the heart-beat cannot be heard, is but small; and still smaller if the examination be made nearer to the full time. Depaul and Jacquemier examined 906 women in the last three months of pregnancy, and only failed eight times in detecting the heart-beat, and in six of these eight cases it turned out that the child was dead.

"This points at once to one of the defects under which this mode of examination labours, when compared with other more ordinary methods of investigation, namely, that it affords us no information where the child is dead; and, in this respect, it is inferior to ballottement, and other means which answer equally whether the child be alive or dead: hence, also, it is obvious that our failing to detect the heart-beat affords no conclusive evidence against the existence of pregnancy. Another obvious defect in this method is

its not being available during that period of pregnancy which is most obscured by doubt."

Of the value of the bluish tinge of the vagina, first noticed by Kluge of Berlin, and Jacquemier of Paris, Dr. Montgomery speaks very favourably. It is most distinct in the upper portion of the vagina, but sufficiently marked at the vulva; it is not uniform, but seen in patches. Dr. Montgomery has not found it within the first two months, frequently not till the fourth or even fifth month.

"My experience, then, justifies me in regarding this peculiar appearance as a very valuable diagnostic indication; liable to this drawback, that it is not available as a general means in practice, a consideration which must, of course, considerably modify the value of this test; but, nevertheless, should subsequent observations prove that healthy pregnancy is, in the great majority of instances, or even in a very large number, accompanied by such an appearance becoming visible within the first or second month, the fact would certainly be one of the most important additions ever made to our means of making a correct diagnosis in cases of early pregnancy; and the more especially as it would be applicable to a period at which we have no other satisfactory means of discovering the existence of that condition, and might occasionally, under peculiar circumstances, be resorted to with propriety and advantage."

The chapter closes with a brief summary of the evidence, which will be found a very useful guide in the investigation of the subject.

Passing then from the consideration of the symptoms of pregnancy, the author proceeds to notice certain substances expelled from the uterus, which may give rise to suspicion of pregnancy, such as an early ovum, moles, uterine hydatids,—all of which the author considers to be the result of sexual intercourse, and, in passing, he confirms the modern view of the nature of the decidua, i. e. that it is not a secretion, but the altered mucous membrane itself.

He does not, however, appear to agree with Dr. Simpson, that this is also the true nature of the dysmenorrhœal membrane. We do not remember to have seen noticed the formation of membranes in the vagina by the coagulation of leucorrhœal secretion, although in practice we have seen it as the result of injections, as Dr. Montgomery states; but in the following case these membranes appear to have occurred without special cause:—

"Still more recently, I was consulted by an unmarried lady affected with a most distressingly severe form of hysterical neural-

gia, presenting all sorts of symptoms, and simulating all sorts of diseases: a very remarkable feature in the case was the almost daily formation and expulsion, with considerable pain, of membranous casts of the vagina. They were quite transparent, of a light straw colour, like that of goldbeater's leaf, about two and a half inches long, hollow, the cavity about an inch in diameter, closed at one end, and open at the other: of these she had preserved in spirit more than three dozen bottles full, of which she gave me three, containing about a dozen of these casts, which I have preserved; their texture was quite firm enough to bear free handling and examination, and, altogether, one of them might, very readily indeed, have been mistaken for a portion of the transparent membranes of the ovum."

Chapter x. is occupied with an account of accidental circumstances attendant upon pregnancy, such as the change in the features, temper, appetite, &c., which, although of not very great diagnostic value, should not be overlooked. The change which takes place in the blood during pregnancy is of importance, both physiologically and pathologically. Dr. Montgomery has given a very elaborate account of the investigations which have been made into the condition of the urine during pregnancy, from which he deduces the following conclusion:—

"Considering, then, these numerous exceptions, on both sides of the question, observed by competent persons, and the many modifications which the urine undergoes, in consequence of changes in the general health, attributable to a variety of causes exclusive of disease, I think we should be very slow to place any confidence in such a sign as the one in question, beyond regarding it, when well marked, as having some value as 'a *corroborative* indication;' and even if it were proved that there was a constant relation between the formation of kyestein and the existence of pregnancy, a mode of diagnosis which requires the use of the microscope, and from three to six or eight days to make the necessary observations, could never be used generally, or satisfactorily, in the daily exigencies of practice."

Chapter xi. is devoted to the consideration of pregnancy under unusual circumstances, as to age, disease, &c.; and evidence is adduced that such an occurrence may take place as early as nine or ten years, and as late as fifty-four; that it may occur in combination with dropsy, moles, and hydatids, uterine or ovarian tumours, extra-uterine fœtus, polypus, scirrhus, prolapse, and malignant diseases; and that it may take place without consciousness on the part of the woman, and from imperfect intercourse. To prove and illustrate these points the author has adduced cases from ancient and modern writers in these

countries and abroad, and has added thereto much original matter from his own extended experience.

Spurious or simulated pregnancy forms the subject of the next chapter, which is entirely new, and extremely important. Most practitioners have probably been consulted about patients of "a certain age," or even younger, who, gaining flesh generally, have found the abdomen enlarge especially, and who tell us that they feel the movements of the fœtus, and who, after a certain time, exhibit symptoms resembling labour; yet all passes off without result, except the delusion. A number of such cases, under varying circumstances, are related by Dr. Montgomery from his own or others' experience. He notices the extraordinary simulation by the abdomen of the figure of the impregnated uterus, of which we have seen some remarkable instances.

"Whatever opinions we may form as to the cause of the condition we have been describing, one thing is certain, that, when called on to investigate cases of the kind, the greatest circumspection and caution are required in giving any decided opinion on the state of the patient, as well as in the treatment we prescribe; in reference to which two points it may be suggested,—1st, that in such cases the greater number of the rational signs must be held as entitled to little or no consideration, if not altogether disregarded; and our reliance should be placed on careful manual examination, by which the abdomen, however enlarged, is found soft, puffy, and compressible, the umbilicus sunk, no abdominal tumour, and the uterus, examined per vaginam, unaltered; for although, as formerly stated, the organ does occasionally under these circumstances enlarge somewhat, the increase of size and condition otherwise are not such as would be likely to lead us astray in forming our opinion: 2ndly, whenever the circumstances are such as, while they apparently favour strongly the notion of pregnancy, in the apprehension of the woman herself, or of others, leave room for doubt in our mind as to the fact, its existence, though doubted, should not be too positively denied; and the woman should be treated, for a time, as if she were pregnant, and such remedies ordered as would be compatible with that state, and at the same time calculated to improve the state of the system generally; an object which we shall, in the great majority of instances, best accomplish by a suitable course of aperients, conjoined with tonics, and the use of the tepid or cold bath."

The last chapter of this part of the work is devoted to the results of an investigation after death of the uterus and ovaries, and more especially to an estimate of the value of those appearances in the latter organs known as corpora lutea.

The distinctive characters of the corpus luteum, as described

by Dr. Montgomery, are well known to the profession. He still entertains the opinion, that the yellow structure occupies a position between the two tunics of the Graafian vesicle; in other words, between the tunic of the ovisac and the ovisac itself; that the central cavity, which always exists at some one period, whether filled with a coagulum or not, is the ovisac or internal tunic of the vesicle; and that the same ovisac, puckered and subsequently compressed, by the development of the yellow body, ultimately forms the white or stellated cicatrix so characteristic of the true corpus luteum. This we consider to be the general opinion entertained by the Dublin School. As to the precise time at which the central cavity of the corpus luteum is perfectly closed, so as to form the white, stellated line, Dr. Montgomery cannot say anything decided: still, he asserts that he has almost constantly found the cavity existing up to the fourth month of gestation, but he thinks that no distinct rule can be laid down. He mentions the irregularities in appearance to which the true corpora lutea are subject, being sometimes very indistinct as to their outlines and markings, and difficult of detection; and he exhibits a coloured drawing, taken from a specimen in his museum, of a corpus luteum of the fourth month, presenting this peculiarity to a marked degree, and intersected throughout with septa. That form of corpus luteum which appears to be made up of convolutions is not forgotten, and four woodcuts, after Caseaux, Dalton, and Renaud, are given in illustration of this peculiarity. We may often fail in finding appearances tallying with those described as belonging to the true corpus luteum, from carelessness in making our sections of the ovary, even though they may in reality be present. With regard to the exact period of the total disappearance of the corpus luteum, we are left in the same state of uncertainty, in which we find ourselves, relative to the disappearance of the central cavity, the author being unable to state anything decided as to the point. He has, however, found it distinctly visible, so late as the end of the fifth month after delivery; but he is positive that "the corpus luteum of a preceding conception is never to be found along with that of a more recent, *when gestation has arrived at its full time*, though in cases of miscarriage, repeated at short intervals, it may."

Dr. Montgomery has enriched his book with numerous exquisitely-executed coloured engravings to illustrate his observations on the corpus luteum: there are so many as twenty altogether, ten of which are new, and to two of these latter we would beg leave to direct special attention. No. 16 represents the ovary of a woman, who died in Sir Patrick Dun's Hospital some

years since, after giving birth to twins; it is of considerable size, extremely *vascular*, and presents *but one corpus luteum. There was no trace of one in the left ovary.* This is a remarkably interesting fact, since it tends to confute the doctrine of those, who have asserted the impossibility of twins occurring without the formation of two corpora lutea—a doctrine so dogmatically laid down by William Hunter. We have here also proof that two ova may occupy one and the same ovisac, and that, after impregnation and development, they may be born children of different sexes, such having been the fact with the woman from whose body No. 16 was figured; moreover, refuting, as Dr. Montgomery observes, "the idea of those who maintained that male and female germs are contributed by *different ovaries*." Figure No. 17 exhibits a corpus luteum found in the ovary of a woman who died of hemorrhage, with uterine hydatids, at the end of the fourth month of gestation; it presents all the characters, and in no way differs in appearance, from that ordinarily belonging to a corpus luteum in conjunction with healthy pregnancy: thus, tending to strengthen Dr. Montgomery's belief, "that uterine hydatids do not occur except after sexual intercourse, and, as a consequence, of impregnation." Amongst the several wood engravings interspersed throughout the work, we recognise three very old friends, viz., figs. 10, 11, and 12 (p. 439). These in the former edition were beautifully tinted, and occupied a distinct sheet, at the commencement of the volume, along with the other coloured illustrations; in the present edition, however, they have been copied on wood, and placed amongst the letter-press for convenience of reference; still, we confess, we would rather see them with their old dress, and in their old place.

Modern researches, in establishing that there is a corpus luteum of menstruation, have diminished the absolute value formerly attached to the presence of this structure as a sign of pregnancy; but a careful examination shows that the difference between the corpora lutea of menstruation and pregnancy is sufficiently marked for practical purposes. Into this inquiry Dr. Montgomery enters with his usual affluence of material and sound judgment, and, after reading all he has accumulated, there can be no hesitation in agreeing with his conclusions:—

"On the whole, then, we find the corpora lutea, which arise from accidental causes, to differ from those which result from impregnation in several particulars. 1. There is, in general, very little or no prominence or enlargement of the ovary over them; this may exist, to a certain degree, in the case of those connected with menstruation, if the examination happen to be made either before the

rupture of the vesicle, or soon after; whereas in the corpus luteum of pregnancy the external prominence is visible throughout the whole, or at least the greater part of gestation: and gives a much more solid and resistent feel to the finger than that of menstruation, which is soft and yielding, while that of pregnancy feels firm and well defined.

"2. The external cicatrix is frequently altogether absent; when the corpus luteum is that of recent menstruation, the cicatrix *may be* present, and even well marked; but we constantly meet with yellow bodies in the ovaries without any appearance of a cicatrix having ever existed over them; which is not the case with the true corpus luteum of pregnancy.

"3. There are often several of them more or less alike, but in different stages of development or decline, found in one or both ovaries, especially in subjects who have died of scrofulous disease, such as phthisis; in which case they appear to be merely depositions of tubercle, and are frequently without any discoverable connexion with the Graafian vesicles; it is, of course, true, that in a case of multiple gestation there may be found more than one true corpus luteum in the ovary, but in such case they are of the same date and degree of development, or very nearly so; whereas, so many as six or eight corpora lutea of the spurious kind, and of very different sizes and appearance, have been seen together in the same ovary.

"4. The spurious productions differ from those of pregnancy in size, colour, and the thickness of their peripheral wall: they are smaller, their colour is not the rich full shade of buff, so happily described by Haller as 'ex flavo rubens,' and by Rœderer as 'e rubella flava,' but a thin-bodied, sickly, bright yellow, or canary colour: their wall is seldom more than a line in thickness, often not so much: their colour remains unchanged, or even grows more pronounced, when their substance has already undergone considerable atrophy; whereas the reverse obtains in the corpus luteum of pregnancy, in which the colour begins to fade, even while the development of the yellow substance is progressing.

"5. They present no trace whatever of blood-vessels in their substance; of which they are, in fact, entirely destitute, and consequently cannot be injected; while those of pregnancy can, most brilliantly: this has been denied, but there is not the smallest doubt about it; I have repeatedly made their substance bright crimson with fine injection; while not a particle could be forced into the spurious productions."

The questions involved in the consideration of the period of human gestation are most important, whether viewed merely physiologically or medico-legally, and although they have engaged the attention of practical obstetricians and physiologists for such a considerable period, nevertheless they are by no means clearly answered. Dr. Montgomery has laboured, and we think not in vain, to clear up some of these difficulties,

by the able manner in which he has handled the subject. The chapter upon the period of human gestation is much more extended, and the subject is much more fully discussed than in the first edition of the work. The question is divided into three, and is considered under the following heads: first, the natural period of human gestation; secondly, its premature arrest, under which comes viability; and thirdly, its protraction.

With regard to fixation of the natural period of human gestation, our chief difficulty arises *in limine*, inasmuch as we cannot determine with anything like accuracy the exact time of conception. And this difficulty will ever remain, unless we meet more frequently in society examples such as "Zenobia, the beautiful Queen of Palmyra," who, on the authority of Trebellius Pollio, "never admitted her husband's embraces but for the sake of issue; if her hopes were baffled, in the ensuing month she reiterated the experiment." Facts, however, exist sufficient, Dr. Montgomery thinks, to warrant our belief that the natural period is 280 days. Dr. Montgomery alludes to the confusion that arises, and has arisen, in computing the duration of pregnancy, from using different measures of time, for instance, in the indiscriminate use of lunar and solar months; and which often originates from the loose expressions sometimes, indeed generally, found in obstetric and physiological class-books, such as "nine months or forty weeks." Here the error is apparent,—"nine calender months make 275 days, or, if February be included, 272 or 273 days, that is, thirty-nine weeks only, instead of forty." Setting aside the few satisfactory instances we have of impregnation following a casual or single coitus, we are compelled to form our calculation on—"1st, some peculiar sensations experienced by the female at some particular time; 2nd, from the cessation of the menstrual discharge; or, 3rd, from the time of quickening." Upon each of these three grounds of calculation Dr. Montgomery makes some observations. Although the theory of the consciousness of conception is now no longer admitted, still, Dr. Montgomery believes it to be a perfectly established fact, that *occasionally* some peculiar sensations *are* experienced "either at the moment" of "or very soon after conception," and he remarks, that he met very lately a striking example where such was the case, "which seemed to realize the lines of Quillac:—

> "Ubi conceptus certissima signa recentis
> Elucent, ut qui dulcis genitalia tentat
> Horor, et admissum semen testata voluptas,
> Osque uteri penitùs clausum."

Allusion is made to other cases in illustration of the consciousness of conception, which are related at pp. 91 and 246 (note) of the work, and also to that mentioned to the author by Dr. Ireland, in addition to which there is related one which occurred in his own practice. In each of the two latter cases the period of gestation was found to correspond almost exactly to that held by the author as the usual term, viz., 280 days. These peculiar sensations, however, should not be too much trusted to when forming a calculation, inasmuch as the author has met with several instances where they were strongly felt and relied on, in which it was subsequently found that pregnancy did not exist.

Two circumstances render the cessation of the catamenia uncertain, either for reckoning the period of gestation or the age of a premature fœtus, viz., that conception may occur during the discharge, or at any time (and in this we entirely concur) "between the termination of one menstrual appearance, and the time of its expected return." Again, there may be one appearance after conception, or appearances may occur more frequently during pregnancy; and lastly, "women not unfrequently conceive during a suppression of several months' duration." With regard to this last point, Dr. Montgomery says he has "at least three patients whose habit it is to have menstruation suppressed, without any morbid cause, for one or two periods before they conceive." The time at which conception most frequently takes place, is, according to Dr. Montgomery, "within a few days after the menstrual discharge."

The idea (we believe propounded by the French school, so long back as 1847) urged by Dr. Tyler Smith, in his work "On Parturition and Obstetrics,"—viz., that parturition occurs at what would otherwise be a menstrual period,—Dr. Montgomery, we think, clearly confutes. Dr. Montgomery says:—

"It is, I think, universally admitted, that a woman may conceive on any day of the interval between one menstruation and another; and if the terms of gestation be a multiple of a menstrual period, or whatever number of days it may consist of, the duration of pregnancy must be reckoned from the time of conception, which may occur on any of the twenty-two or twenty-three clear days intervening between the termination of one catamenial period and the commencement of the next; consequently, the last of the 280 days, or other number, must fall as much after the day of the tenth menstrual return as the day of conception was after that of the preceding menstruation." "Again, if the time of labour were on the very day of the tenth menstrual return, then, as already remarked, all women who had menstruated on the same day, and

afterwards conceived, should also fall in labour on the same day, which, most assuredly, is not so."

The time of quickening, as a basis for calculation, cannot be at all relied on. Several cases are given, in which the time of conception could be determined from a single coitus; and these all fell in labour on or near the 280th day.

Dr. Montgomery enters fully into the subject of premature births, both as involving legal and moral considerations. He speaks of the importance of a knowledge of the progressive development of the fœtus, but does not detail its successive advances, as being misplaced in such a volume as his; he, however, insists upon the necessity of remembering that accident or disease, in some of the structures of the ovum, especially in the placenta, may cause the fœtus to appear, both as to its size and external character, by no means in accordance with the real period of gestation. The reason of this is obvious, and examples are not unfrequent, several of which the author gives on his own authority, as well as that of Duparcque, Ducos, Outrepont, &c. The question of viability is also fully entered into, and as an example of its importance the celebrated Jardine case is quoted. In pronouncing an opinion as to the age of a new-born child, the author considers great caution should be used, especially when the period of gestation has advanced to within a month of its expected termination.

Dr. Montgomery attaches considerable importance to Chaussier's test for the discovery of the age of the fœtus. A Table is given "of premature births, and the survival of the children," in which is shown the date of the last menstruation, the supposed date of conception, the date of delivery, the duration of pregnancy, and the period of survival, in eleven cases, two of which occurred under the author's own observation, viz., Nos. 10 and 11; in the former, the child was born after a gestation of six months and fourteen days, and is now fourteen years of age; and in the latter, the child was born after six months and eighteen days, and is now thirteen years of age.

But by far the most important question, relative to the duration of human gestation, is its protraction. Is it possible that the period of human gestation can be protracted to any considerable extent, beyond its ordinary duration, viz., 280 days? With Dr. Montgomery, we do not see why the period of pregnancy should not be protracted occasionally, as well as any other process which is marked by periodicity. Amongst the lower animals numerous instances have been

found to occur, in which no doubt could exist but that there *was* a protraction of gestation; and, arguing by analogy, why should not the same be found amongst the human race? Why, with man, should gestation be the only process connected with his reproduction, for which a total exemption from any variation in its period, is to be claimed?

Dr. Montgomery quotes the investigations of Tessier, with regard to the period of gestation with cows, mares, sheep, and rabbits, which period was found liable to protraction in each group. A mare of the author's, curious enough, furnishes a marked instance of protraction. "She was covered by Tyrant on the 6th of June, 1841, and did not drop her foal till the 20th of May, 1842, the interval being 11 calendar months and 2 weeks, amounting to 348 days," being 13 days beyond the usual period with mares, viz., 335 days. The result of the series of observations conducted by Lord Spencer, relative to the duration of pregnancy with cows, is also quoted, proving that they are liable to protracted gestation; the whole forming a mass of evidence showing the fact of such protraction to be incontrovertible, so far as our domestic animals are concerned.

We could quote many cases interspersed throughout the work, which put the question beyond a doubt, as to the occasional protraction of gestation. Dr. Montgomery has, both "by reasoning and analogy," as he himself observes, "established the principle" he contends for; and he remarks that, "it does not appear that the amount of protraction has any discoverable, fixed, or settled relation to any other circumstance connected with gestation;" and he further observes that, unquestionably, the doctrine lately promulgated by Dr. Tyler Smith is "inaccurate," viz., "that in the rare cases, where the duration of pregnancy exceeds ten menstrual periods, the function of parturition is deferred to the following period, so as to make pregnancy reach to eleven periods, inclusive." "Unquestionably," say Dr. Montgomery, "this is not so." As far as we are ourselves concerned, we consider that the evidence brought forward, and the facts so clearly and ably argued by Dr. Montgomery, relative to the question of the possibility of protracted gestation, ought to set the matter completely at rest, and decidedly carry conviction to any "unprejudiced mind." The legal aspect of the question is also considered, and several cases are deduced and commented on. This portion of the work concludes with three interesting Tables, showing the duration of pregnancy. In one the duration is counted from the day of marriage in 13 cases: from which

it is seen that delivery took place, in 2 instances, in the thirty-eighth week; in 8, in the thirty-ninth; in 2, in the fortieth; and in 1, in the forty-second week. The second Table comprises Dr. Reid's 25 cases, in all of which the duration is counted from a single coitus: from this Table we find that delivery took place in the thirty-eighth week with 4; in the thirty-ninth, with 5; in the fortieth, with 14; in the forty-first with 1, and in the forty-second, with 1. The third Table contains so many as 56 cases, collected by the author, in which the day of fruitful intercourse was known, and the result is found to be as follows: 1 was delivered in the thirty-fifth week; 2 in the thirty-seventh; 2 in the thirty-eighth; 10 in the thirty-ninth; 22 in the fortieth; 9 in the forty-first; 8 in the forty-second; and 2 in the 43rd week of gestation. Dr. Montgomery considers that the duration of pregnancy may be influenced, whether abbreviated or protracted, by certain circumstances—for example, by the age of one or both parents, "either absolutely or relatively," and, as bearing upon this point, analogically, he alludes to the fact of Lord Spencer's *aged* bull, who invariably gave rise to *prolonged* gestation; and, with regard to human gestation, he mentions a fact, which we think we can corroborate: that, as a general rule, first gestations are shorter than those subsequent.

No one can doubt but that an investigation into the proofs of delivery is most important, both on account of the moral interests of society, and for the due and safe administration of justice. The law requires, where a woman is arraigned for infanticide, not only the finding of the child, but also proofs of delivery; and into an examination of the signs of delivery Dr. Montgomery enters most fully. In investigating questions of this kind, it is necessary to be aware of a fact, which may at first seem paradoxical—viz., that utero-gestation may not be followed by the birth of a child.

"It has been already shown," observes Dr. Montgomery, "that a woman may be pregnant, and the fruit of her womb may be blighted at any period, but may be retained in utero, until the full time is accomplished; *while the size of the abdomen happening, from some other accidental cause, to continue increasing, until the expulsion of the degenerate ovum occurs, the woman may be suspected of having brought forth a child.*"

Again, it is quite possible for a woman "to have a child in her abdomen without being pregnant in the ordinary sense of the term," as illustrated in the case which occurred in

Cork-street Hospital, and which Dr. Montgomery relates at page 350 of his work, of a woman who carried a full-grown child in her abdomen for eight years.

Dr. Montgomery reviews in detail all the circumstances, to be taken into account in the investigation, when considering the question of recent delivery, during life; such as, the countenance, the state of the breasts and their secretion; the abdomen, the uterine tumour; the state of the os uteri, vagina, and external parts; laceration of the perineum; and the lochia. Having carefully detailed everything connected with these subjects, he next alludes to the signs of delivery from examination after death, more particularly with regard to the uterus, all the conditions of which, at various periods subsequent to delivery, he explains; and here he speaks of the researches of Dr. R. Heschl, "On the Conduct of the Human Uterus after Delivery;" and explains the views entertained by that author, relative to the transformation of the uterine fibres into molecular fat, its subsequent diminution in size, and, finally, the formation of its original tissue.

The last subject treated of in Dr. Montgomery's volume is spontaneous amputation of the fœtal limbs in utero. Dr. Montgomery laid before the profession, so long back as 1832, his views relative to the agency by which this lesion was brought about, which we believe he has proved, beyond all doubt, to be correct. This subject also formed a chapter in the first edition of his book. Besides the author's original cases, several are given from the writings of others; and this portion of the work is illustrated with numerous wood-engravings.

Having alluded to intra-uterine amputations caused by bands, and to impressions made on the fœtal limbs by the umbilical cord, he mentions a curious anomaly connected with that organ—viz., the formation upon it of a regular figure-of-8 knot. Every practitioner has occasionally met with simple knots on the cord, but we believe the formation of such a complex one as Dr. Montgomery has figured, to be of extremely rare occurrence; the danger to the child possessed of a funis so curiously coiled is obvious. The author concludes this chapter with an account of several other intra-uterine lesions; the two most remarkable of which he had very recently an opportunity of witnessing. These are cases of deficiency of one entire lower extremity, including nearly all the bones of the innominatum in each, and deficiency of the abdominal parietes in the corresponding neighbourhood, from the attachment of the

placenta to the fœtus in that region: they have been already published in detail in our pages.

We have given a lengthened review of this volume, and yet not too much so, when we consider the importance of the subjects upon which it treats. We have ever considered the "Exposition of the Signs and Symptoms of Pregnancy," by Dr. Montgomery, as one of the most perfect dissertations extant. A new edition, therefore, of that work would be by no means likely to fall short of our expectation; neither has it. There is one circumstance connected with this second edition most remarkable, namely, that the views so carefully arrived at, and published by the author nearly twenty years ago, far from having been disproved, have been strengthened by deep and continued research, pursued unceasingly during that period. This speaks for itself. Dr. Montgomery has shown, in the present volume, that he has kept pace with the times, that he has unceasingly continued to pursue the investigation of the questions upon which he has treated, and that all this was not incompatible with the extensive practice of his profession. Everything from the pen of the author we read with the greatest pleasure, his compositions being sure to bear the stamp of having emanated from a practical physician, a most accurate observer, a powerful reasoner, and an accomplished scholar. The book before us does so in an eminent degree; learned, without being pedantic, it possesses a fascination so strong, and excites an interest so great, that the reader leaves it with difficulty, and closes it with regret.

The style and getting-out of the volume, are such as were to be expected from the great house by which it is published; the woodcuts are exquisitely finished, and the coloured engravings beautifully executed.

On Calculous Disease, and its Consequences; being the Croonian Lectures for the year 1856, *delivered before the Royal College of Physicians.* By G. Owen Rees, M. D., F. R. S., &c. London: Longmans. 1856. 8vo, pp. 81.

The work which bears the above title presents us with a clear and concise exposition of a most interesting practical subject —interesting alike in its chemical, pathological, and therapeutical bearings—from the pen of one who is well known to the profession as an accurate original observer, and a valuable contributor to the literature of the subject embraced in the

Croonian Lectures of the present year. The matter of the work is divided into three chapters, of which we shall notice principally the first,—not that the remaining two are of less importance, but that the cursory sketch which we shall give of the topics therein discussed may be an inducement to our readers to peruse the work for themselves.

In the first lecture, which is devoted principally to chemical considerations, the author endeavours to show that the so-called phosphatic diathesis, as observed in calculous disease, is nothing else than a sequel of other conditions, and that it results from mechanical or chemical irritation produced in the urinary channels.

Although medical chemists have been long aware of the intimate relations subsisting between the uric and oxalic diatheses, yet these two states have hitherto been considered as having a separate existence; whereas the researches of Dr. Rees have led him to maintain the opinion that the state of the system in which we observe a tendency to the formation of oxalate of lime in the urine, is to be considered *identical* with that accompanying the uric acid diathesis, and as requiring the same treatment, and the same precautionary measures.

The arguments which the author adduces in favour of this last hypothesis are very ingenious, and by no means inconclusive. These arguments are derived partly from a consideration of the chemical alterations induced by the application of heat to urine containing an abundance of lateritious sediment. Thus, it is found that upon cooling a specimen of this secretion which has been rendered clear by heat, not only do we perceive that the urates are re-deposited, but in many cases oxalate of lime is thrown down in minute crystals. Hence, it would appear, the difficulty of determining whether oxalic compounds have really existed, *as such*, in the blood or urine. In fact, the author disbelieves in the presence of oxalate of lime in small quantities in many cases where the urine contains abundance of urates, and argues that it is produced altogether by the heating process which is had recourse to by the analyst.

A brief analytical abstract of several cases recorded by Dr. G. Bird, as illustrative of the oxalic as a peculiar diathesis distinct from the uric, is brought forward as favouring the views which have been just expressed. He says:—

"The conclusion appears to my mind quite inevitable, that whenever oxalate of lime is formed in the urine, it should be re-

garded as *produced after secretion*, and that there is no such thing existing as an oxalic diathesis."

The observations of Professor Lehmann, as well as some experiments of Wöhler and Frerichs, tend strongly to corroborate the views of Dr. Rees, and are quoted by the latter in the course of the argument.

With regard to the principles whereon is based the treatment of that state of the chylopoietic organs which is usually attended with increased excretion of urates and oxalates, some highly valuable and practical remarks are offered in connexion with this subject; as these, however, do not well admit of condensation, we must refer our readers to the work itself, which may be perused with much advantage.

The author looks upon the deposition of earthy phosphates as simply the result of a diseased state of the urinary mucous membrane; not, however, as secreted by the membrane, but precipitated from the urine by the alkalinity of the fluid poured out on an irritated and inflamed mucous surface. Hence the great rarity of phosphatic calculi, these having been observed only in cases where the cystic lining membrane has been the seat of disease, in consequence whereof it has poured out an alkaline fluid, which reacts upon the urine remaining in the imperfectly emptied bladder, and thus originates a nucleus for further depositions.

In the second chapter the mechanical and pathological bearings of the question regarding calculous disease are treated of; while the third is devoted to a consideration of the following, namely: the importance of hematuria as a symptom; an investigation into the causes which determine the presence of pus in the urine; and, finally, the treatment of calculous disease.

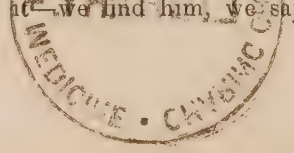
The practical remarks contained in this little work upon some matters of difficult diagnosis are of great value, and deserve to be read with attention. The several conditions which may lead to errors in forming our diagnosis are stated with a degree of clearness and precision which would suffer materially by any attempt on our part to present them to our readers in an abstracted form; we shall, therefore, conclude this rather brief notice of an excellent volume, by awarding it our most hearty commendation.

Du Traitement de la Pourriture d'Hôpital, au moyen des Applications topiques de Teinture d'Iode. Par Le Dr. L. Saurel. Pamphlet, pp. 16. Reprinted from the Revue Thérapeutique du Midi. Montpelier, 1856.

This little pamphlet gives the details of three cases of hospital gangrene treated by the local application of tincture of iodine. Contrary to our practice in this city, the actual cautery is the favourite application in Montpelier, and the comparison drawn by the author is only between the actual cautery and iodine. The affection is so rare in our hospitals that a long time may elapse before we can have an opportunity of testing the merits of either treatment. In the few cases which have fallen under our notice, strong nitric acid, or the acid nitrate of mercury, has been the agent most relied on; but we see no reason why iodine, which is coming into fashion as a disinfectant and detergent, should not be as useful in hospital gangrene as in other putrefactive diseases. The great objection to its use is the prolonged pain it gives rise to. Even when applied in the form of a weak tincture, the pain is severe, and when applied in the manner described by M. Saurel, the suffering is not only great, but protracted. He soaked charpie in the tincture, covered the wound with a thick layer of this, and prevented evaporation by a large poultice over all. The applications were changed twice a day. As may be supposed, the pain was severe, and M. Saurel, in concluding, gives the preference to the actual cautery wherever applicable, and would only prescribe the other when timidity in the patient, or some peculiar situation in the disease, rendered the use of the hot iron inadmissible.

Physicians and Physic; Three Addresses. By James Y. Simpson, M. D., F. R. S. E., Professor of Medicine and Midwifery in the University of Edinburgh, &c. Edinburgh: Adam and Charles Black. 1856. 8vo, pp. 133.

In two of the above Discourses, addressed to the newly-made graduates of the University of Edinburgh, in 1842 and 1855, respectively, we find Dr. Simpson, having himself attained the highest possible professional position, not only at home, but also in the eyes of the world at large,—for probably no one ever enjoyed a more universal reputation than he does, or more quickly attained it—we find him, we say, looking back to



admonish his brethren just launching on the world, in the first, as to the serious responsibility of the duties which await them; in the second, as to the discouraging nature of the prospects which it will, in all probability, be their lot to pass through during the early years of their career. In the third Address, delivered before the Edinburgh Medico-Chirurgical Society, on the occasion of taking the chair as President, on the 5th of January, 1853, Dr. Simpson, in an interesting and comprehensive sketch of the modern progress of Medicine and Surgery, fully refutes the insinuation which has been thrown out, as he observes, both without and within the profession, that, "while other departments of science and art have, during the last fifty or sixty years, been marching forwards at a pace previously unprecedented in their history, the art of healing has remained comparatively stationary." It is not our intention here to enter on an analysis of the volume before us; the book is within the reach of all, and it is one which all should have. In it, the young man just commencing his profession will be counselled, by one whose career points him out as a competent authority on the subject, that success in life is to be sought, not in reliance on the patronage of others, or on any extrinsic qualifications of his own, but on the economy of time, on the formation of habits of order, of attention, and of concentration of thought, combined with a determination to shrink from no obstacle, and in all the relations of life to carry out the golden rule, "Do unto others as ye would that they should do unto you." The more advanced and the more prosperous will be seasonably reminded of the nobler aims of Physic, and that they are "educated and destined for higher work, and for holier uses and purposes, than the greedy grubbing up of gold, either out of earth-holes at Ballarat or out of the pockets of their patients;" while all will be encouraged, by the review of the vast strides which Medicine and Surgery have made during the last fifty or sixty years, to endeavour to participate in the glorious work of their advancement, by which so many and such incalculable benefits are conferred upon the human race.

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Varicose Veins: their Nature, Consequences, and Treatment, Palliative and Curative. By Henry T. Chapman, F.R.C.S. London: Churchill. 1856. 8vo, pp. 99.

When an individual devotes himself zealously to the consideration of any particular subject, making it the theme not only of continued thought and reflection, but likewise an object of laborious research and active experiment, and ingenuously engages to bring the result of his inquiries before public notice, he is unquestionably entitled to the most favourable consideration that can possibly be conceded to him, as a species of requital for his disinterested effort to confer a benefit on society in general. But, undoubted as this observation may be admitted to be in the great majority of instances, its justice and truth must be at once conceded in that particular branch of science which professes to alleviate those painful infirmities to which the common lot of humanity is indiscriminately liable, in essaying the noble attempt to palliate, at least, if not entirely remove, the existing causes which have the tendency to entail such a vast amount of suffering on their unfortunate victim, making that life—which, under such circumstances, is sure to be an ordeal of torture and utter hopelessness—again, what it was originally intended to be, the source of positive enjoyment and intense gratification. He who embarks in a work of this nature knows not but the obscure hint, casually dropped, and inadequately worked out, may form the foundation of some important result in the hands of another, whose mind, more acute and inquiring, may observe at a glance its intrinsic value, and, when once aware of this fact, with patient perseverance will follow it through its various mazes, evolving idea after idea, gradually transforming the shadow into the substance, the subtile but unsupported theory into the unequivocal and decisive fact.

In the present day, pure and absolute originality may be fairly questioned, and to the individual whose reading has been extensive, and not confined to one isolated branch, it repeatedly forms a subject of no ordinary amusement to trace to its primitive source the germ from which the principle of some so-called original discovery has emanated, and, pursuing the chain of reasoning by which its several hypotheses have been laid down, gradually strengthened, and ultimately confirmed, to regard with emotions of astonishment and admiration the simplicity of the cause that will sometimes originate conclusions so important, and which, when explained, are apparently so obvious.

As an example of the truth of the general tenour of those remarks, we have only to direct our attention to the small volume at present lying before us, which, with scarcely a pretension to novelty, has yet succeeded in investing an extremely trite and commonplace subject with no small degree of interest, owing to the graceful and pleasing manner in which it has been written. In this, however, its author, Mr. Chapman, has been guilty of no plagiarism, for he has very candidly acknowledged the sources from which he has derived the principal portion of his information; and the highest praise, therefore, which we can fairly bestow on his work is to assert, that it is a very valuable *resumé* of what was already well ascertained on this subject, to which he has unquestionably appended some few suggestive observations of his own, deserving at least of a favourable consideration.

The first forty pages of the volume are entirely taken up with a brief pathological account of the affection termed Varix; its divisions; the veins most liable to be attacked; the changes that occur in the structural arrangements of their coats, their serpentine course, and valvular lesions, &c.—circumstances presenting no features of originality to the well-informed surgeon, who, from his familiarity with the writings of Colles, Cooper, Hasse, Rokitansky, Cruveilhier, &c., should be presumed to be as well acquainted with them as with the causes that produced them; all of the latter of which he has very carefully enumerated, with the exception of one only, yet one, from the repeated and striking examples we have witnessed, we are induced to attach no small degree of importance to. We allude to that peculiar hereditary diathesis by which those lesions of the venous system are transmitted, like heir-looms, from the parent to the offspring, ranging through entire families, though not always evincing their disordered function in the same regions of the body.

It would appear, from the general tone of the remarks scattered through these preliminary pages, that Mr. Chapman strongly inclines to the idea that varicosities of the vein are, in the great majority of instances, the results of inflammatory action. But with this view we cannot coincide; for if not produced by congenital predisposition, we are decidedly of opinion they are almost invariably the effect of some local obstruction. Taking rational principles as our guide, inflammation would appear to be the consequence rather than the origin of the morbid condition of the vessels, which, dilated beyond their normal capacity, naturally become intolerant of this undue distention, which they evidence by precisely similar symptoms as

we would expect to find in any other of the formative tissues, if subjected to the same exciting state of irritation. Under all circumstances, we are strongly disposed to agree with Mr. Herepath as to the most common cause of this affection, in attributing it to the constricted opening in the fascia lata of the thigh, which the saphena must perforate in order to discharge its contents into the femoral vein; and not only is his own case corroborative of this view, but numerous anatomical reasons might be adduced to strengthen it still further: as, for instance, its close investiture by the unyielding crebriform fascia, the angle at which the union of the two vessels takes place, repeatedly, most unfavourable to the healthy current in the more superficial one, the several smaller veins from the abdominal walls and back part of the thigh that open into the latter immediately at its termination—all these must have a tendency to create, more or less, congestion at this point, a condition that would require the very simplest exciting cause to be converted into a positive obstruction. The same reasoning will also apply to the posterior saphena, which is almost identically circumstanced.

Moreover, the very remarkable case detailed at page 28 of the volume would appear to militate most strongly against the view as suggested by Mr. Chapman, and demonstrates most forcibly the general proclivity of inflammation to induce obliteration, the varices being the result of the obstruction, not of the disease itself:—

"G. R., aged 38, consulted me in August, 1848, for inflammation of the branches and trunk of the external saphena of the right leg, which terminated in the obliteration of the vein from the ankle to the ham. In December of the same year, phlebitis again occurred in the lower portion of the femoral vein, and an abscess formed, apparently in the sheath of the vein and artery; a second purulent deposit took place on the outside of the thigh, beneath the fascia; under the action of mercury, rapidly and freely thrown into the system from the onset of this second attack, the contents of both abscesses were absorbed, leaving the greater portion of the femoral vein obliterated. In July, 1849, my unlucky patient got wet, and phlebitis declared itself for the third time in the upper part of the vein. Again I had recourse to mercury externally and internally, plying him at the same time with nauseating doses of tartarized antimony; but the mischief speedily extended along the right iliac vein to the vena cava, and down the iliac vein on the left side, both limbs becoming equally livid, cold, and tumified. Sir Benjamin Brodie and Mr. Bransby Cooper now saw him with me, and considered his state to be all but hopeless. He nevertheless recovered from this very serious attack, a superficial network of veins having been developed

on either side, from the ankle to the groin and back of the pelvis, for the return of blood from the extremity.

"In the right limb, the external saphena, the popliteal, the femoral, and probably the iliac veins, are obliterated. On the opposite side the damage has not been quite so great, but the main channels are evidently much obstructed. Of the multitude of subcutaneous veins that carry on the circulation vicariously, those of the thigh, never having been bandaged, are decidedly varicose, with altered structure, manifest traces both of atrophy and hypertrophy existing, and during their enlargement they were the seat of frequent and rather severe pain. In those of the leg, although uniformly dilated far beyond their natural size, owing to the precaution of constant support, little uneasiness has ever been felt, and they still remain in the incipient stage of varix. But if at any time he assumes the erect posture, without first bandaging his legs, the sense of distention becomes in a few seconds so acutely painful, that he is totally unable to stand; yet, bating an occasional alarm after over-exertion, he has continued perfectly well for the last six years, the bandage enabling him to ride and walk, and even to get through a day's shooting, almost as well as before his illness.

"I submit, accordingly, that we have sufficient grounds for the conclusion, that subacute or chronic inflammation of the venous tissues is a very frequent source of varix; that it is, in all cases, the immediate agent in converting a mere functional infirmity into structural disease; and that the removal of it and its products is the first step towards a cure."

We apprehend that Mr. Chapman's views, as here laid down, are scarcely tenable; and the very case cited only tends to prove more strongly the opinion which we have always entertained, that in almost every instance of varix, the cause lies in some local impediment, in the present case existing undoubtedly in the obliteration of so many and important venous trunks from phlebitic inflammation. Obstruction here is still the cause; but its occurrence in this guise can be regarded merely as exceptional, arising from a source always attended with symptoms so obvious as not to be easily overlooked; while the slow, gradual, and usually painless progress of varix, as generally witnessed, must rationally be attributed to some other less important lesion than that which he so strenuously advocates.

The author concludes this section of his work with the following description of the dangers that are to be apprehended from this too common venous lesion:—

"In long existing and neglected varix, ulceration or rupture of the diseased walls of the vein is extremely liable to take place, and a dangerous, if not fatal, loss of blood may ensue before surgical aid

be obtained. The process by which this is ordinarily brought about is minutely described by Rokitansky:—'When the pressure of the varices destroys the fascia under which they lie, they become deposited in the subcutaneous cellular and fatty tissue, and, finally, in the true skin itself, which becomes attenuated, inflames, and gives way, causing a hemorrhage that may prove fatal.' Excessive hemorrhage from this cause, with serious injury to the health, is an accident of very frequent occurrence. Many patients whom I have treated for ulcer on the leg, complicated by the presence of varicose veins, have informed me that their lives have been more than once thus jeopardized. And although the hemorrhage usually ceases spontaneously as soon as the patient falls to the ground in a state of syncope, the instances on record of death therefrom are sufficiently numerous to render it an item of grave importance in our estimate of the consequences of varix. Some of these evils may fairly be set down among the incidental rather than the necessary sequelæ of varix; but a general survey of them amply justifies Hasse in describing the malady as 'a source of abiding annoyance and suffering,' and if not fraught, strictly speaking, with imminent danger to life, still capable, under particular circumstances, of operating as the immediate cause of death."

In connexion with the subject under immediate discussion, a question of no ordinary importance naturally arises, and as it is one really of a vital character, it would be a matter of much interest to the surgical profession generally, could a definitive answer be given to it. The inquiry which we would propose to submit is the following—In a varix once fully established, is it possible to accomplish a radical cure—is it practicable to restore to its original condition that healthy state of the venous walls, on the disintegration of which the obstinate persistence of the disease depends, or can the current within the vessel be so effectually interrupted as to eradicate the offending cause altogether? To the two first of these queries it is our firm conviction that a decided negative must be returned; and, with respect to the last, the bare attempt to effect such a proceeding must be always attended with such imminent peril to the patient, as to render the operation perfectly unjustifiable, unless the advantage to be obtained, which is in all cases extremely doubtful, could be accurately and positively calculated on. We are induced to offer this opinion on no theoretical grounds, but as the result of many and careful examinations made on the dead subject: our metropolitan dissecting-rooms, from their unlimited supply, affording the most ample opportunities for instituting such an inquiry, and of observing in its minutest details the alteration produced by this intractable disease, as exemplified in the utter disorganization of the

affected tissues when thus attacked. Nothing that we have ever witnessed would lead us to indulge the most distant expectation that the complete curative process could be ever rationally undertaken with the remotest chance of success, in a mass of disease so formidable in its nature; the mere fact of attempting to restore it to its primitive form and functions arguing an amount of infatuation scarcely credible. If, then, reparation appears to be so utterly hopeless, can a more successful result be reasonably looked for from any of those operations which have been from time to time suggested for its radical cure—we allude to excision, incision, ligature, galvanic puncture, &c.—all of which Mr. Chapman has carefully enumerated and thoroughly analyzed, at the same time adducing unanswerable arguments in condemnation of their employment; to one of which we would beg to direct most especial attention—where he states with great reason and truth, that, as the cure must be accomplished by any of these methods by exciting an amount of inflammation sufficiently intense to obliterate not only the main or principal trunk of the vessel, but likewise all its anastomosing branches, which are also in a state of varicose engorgement,—the practitioner should be slow in adopting such violent measures, more especially where they are attended with issues so doubtful, but always fraught with the extremest danger to the unfortunate patient. And yet a love of singularity, or a recklessness of all ulterior consequences, or, perhaps, to express ourselves more charitably, the feeling of confident assurance that they may yet succeed in their proposed object, will still induce many to persevere in those hazardous operations, which both reason and experience have hitherto indicated as utterly unavailing; and to such an extent will this infatuation sometimes proceed, that we have actually witnessed a late hospital surgeon in this city coolly excising a portion of the saphena in one individual, while the adjacent bed was occupied by another on whom he had performed the same operation some time previously for a similar varicose affection, not only with an unsuccessful result, but having absolutely rendered the condition of the limb much worse than it originally was before this ill-judged interference, as was too clearly evidenced by its proneness to assume the inflammatory action, combined with a tendency to the development of obstinate and extensive ulceration. We quote this isolated case merely as an exceptional example, believing the rule to be exactly the reverse, as, in the generality of instances, we will almost invariably find the heroic practice advocated

in the sanguine effervescence that commonly marks the incipient career of the young aspirant to professional practice, gradually settling down into a more cautious and temporising policy—the offspring of a maturer judgment and acquired experience.

But, of all the diseases which we are acquainted with, the one in question seems to have afforded the most unbounded range, not only for varied operation, but also for the exercise of the ingenuity of the surgeon, for a lengthened period, in reiterated attempts at devising palliative measures, with a view of alleviating that amount of distress and inconvenience which is always an inseparable consequence of this venous lesion. In a review of this nature, it would answer no useful purpose to enter into a minute detail of what has been proposed or actually employed, in order to accomplish such a desirable consummation, and we would, therefore, beg to refer the reader to the work itself, where he will find them all stated, their merits impartially discussed, and the particular cases discriminated, to which each appears more especially applicable. We cannot, however, omit noticing a proposition of his own—which, although not strictly original, but founded on a hint received from another, is yet perfectly novel in its adaptation to the purpose it is intended to serve. To this mode which he recommends he assigns the name of "Wet Dressing," and, whether we regard it merely as a support to the distended vessel, as a check to undue œdema of the limb, or as a powerful absorbent of unhealthy fluids effused into its cellular interstices, it appears to be, if properly adjusted and employed, according to his suggestions, one of the very best means that has as yet been submitted to the profession, not only to check incipient varix, but to afford a chance, feeble though it may be, of ultimately restoring the vein completely, provided the valvular lesions, with their concomitant disorganization, has not been allowed to proceed to a too great extent. After stating the very serious objection to Mr. Hodgson's plaster strapping as excoriating the skin, Mr. Chapman thus proceeds to describe his own method:—

"Placing the patient on a low seat, and elevating the foot until the veins empty themselves by the gravitation of the blood towards the trunk, I apply wet straps of linen or calico precisely in the same manner as Mr. Scott applied adhesive plaster. The bands for this purpose should be from two to three inches in width, and from twelve to sixteen in length, stout enough to prevent them from tearing too easily, but not too thick. Adjusting the middle of one of the

shorter and narrower of these bands, previously soaked in water, just above the heel, the two ends are brought forward over the ankles, drawn tightly and crossed upon the instep; the middle of another is placed beneath the sole of the foot, its extremities brought up firmly over the instep, and laid down smoothly one on the other; a third is applied, like the first, from behind forwards, but a little higher; and thus, ascending the leg, the process is repeated with the rest of the bands, each one in succession overlapping the upper half of that below it, until the limb is firmly and evenly cased to the knee. Over the straps a calico roller is carefully put on, the greatest attention being paid to its equable adjustment, so that the pressure may be uniformly distributed over the entire limb.

"Through its texture the course of the varicose veins should be moistened several times daily with cold water, diluted Goulard lotion, or solutions of alum, sulphate of zinc, or chloride of lime. Whenever the bandage is taken off for renewal, the dilated veins should be subjected to brisk friction upward with the hand for some time, and a douche of cold water poured over them, the foot being kept in an elevated position until it is reapplied. In winter, and when patients are elderly or delicate, the free application of cold water or lotions is not always safe, and this part of the treatment must of course be left to the discretion of the surgeon. It is better, under such circumstances, to confine the astringent influence of cold strictly to the vessels affected. No one who had not tried this mode of bandaging can form an estimate of the power of adhesion possessed by the wet strapping, or the amount of steady, even support it is capable of affording. In these respects, as I have elsewhere stated, when advocating their employment in the treatment of ulcers and cutaneous eruptions on the leg, their action is in no degree inferior to that of plaster; at the same time, that the softness of the material allows of its closer adaption to the inequalities of the limb and muscles, and precludes all risk of cutting or excoriation—accidents so common when plaster strapping is made use of, that its contact could never be borne long enough to produce any permanently good effect.

"The wet straps are especially serviceable in compressing the bulk of the soft parts before the application of the roller, and they give the latter a much better hold than it can take of the bare skin, or even of plaster; thus materially diminishing the chance of the roller slipping. Their greater permeability, again, admits of the more efficient use of lotions; and their cheapness, when compared with diachylon or any other kind of plaster, is no slight recommendation. Unless displacement of its turns should occur earlier, or uneasiness be felt at any point, if the skin be sound, the bandage need not be renewed till the fourth, fifth, or sixth day of its application; indeed, I have frequently left it undisturbed for a fortnight or three weeks, &c. &c."

The volume concludes with a few well-selected cases, illustrative of the treatment recommended by the author, with their

several results; and, on the whole, we think that the work is calculated to reflect much credit on Mr. Chapman, whether we regard the research, impartiality, or literary ability, which he has displayed in its production.

Essays on State Medicine. By Henry Wyldbore Rumsey. London: Churchill. 1856. 8vo, pp. 424.

With all our national advancements in literature and science, and their application to human industry and improvement—with all our reputed skill in the money-making art—it must be admitted that, in many of our social relations, we are very far behind several of those countries which we regard as inferior to Great Britain in intelligence and wealth. We more especially refer to the arrangements which exist for the protection and preservation of the health of communities in these respective countries. It is not within the scope of our duty to enter into any inquiry respecting the cause of this; but simply to state the fact, and to express our conviction that the Government and Legislature of this country are, and will be, esteemed lamentably regardless of the best interests of the public while they continue to overlook those hygienic laws which form a large portion of the basis of social improvement, and, consequently, of human happiness; for although the people, in their individual aspirations after liberty—their desire for independence—and their pursuit of wealth—are forgetful of the common good, and are heedless of what does not seem to affect themselves immediately, we hold that it is the incumbent duty of a wise Government to provide for the due observance of every means by which the general weal is affected, or can be maintained, and that, too, irrespective of party or of individual rights—which are, however, public wrongs! There is a certain locality which is said to be "paved with good intentions," out of which we know nothing of good ever has arisen; our Legislature should not permit their best intentions to be thrown into a similar abyss, never to produce beneficial results; for, no matter how much limited interests may thwart them, popular ignorance oppose, or vested rights combine to perpetuate injustice, they should only have regard to the common good, and never yield up a generally beneficent purpose to malignant and selfish clamour. Yet, how many seemingly beneficial intentions of the Legislature have been abandoned at the call of self-interested persons, or before the opposition of a

mere faction[a]? We have only to remember the many abortive attempts which have been made, during the last ten years, to legislate on several matters connected with the public health especially, to be convinced that there is something radically wrong somewhere! We are not prepared to say that every one of the lapsed Bills was the best that could have been conceived upon the subject; nor are we satisfied that those measures which have become laws are what they should altogether have been; but we cannot refrain from expressing our regret that so little has been comparatively done to promote public hygiene, and that conflicting interests have so often interfered with practical benefits being conferred upon the community. This state of things should not be permitted to continue. We are not politicians, in the usual acceptation of the term: and, if we even were, we would not consider that the pages of a Journal devoted to science should be made the medium of expressing political sentiments; but we think it our duty to remind the profession that, in all measures appertaining to the public health, we have not only a common, but a special interest; we are not only affected by them as members of the community, but they have special relations to each of us, as members of the medical profession; and, were we, as an *united body*, to deal with these questions in an enlightened, philanthropic, and liberal spirit, we have power enough to command the framing and passing of wise and comprehensive sanitary enactments: but, divided as we are, we have little or no collective influence, while our colleges and licensing bodies are nearly inoperative, from the fact that each consults its own, irrespective and careless of the general, advantage; hence, the medical profession of the United Kingdom is but lightly esteemed by our statesmen: and hence it forms a striking contrast with that of the Law, which is an exemplification of the adage that "in union there is strength."

The preceding sentiments have been called forth by a perusal of the Essays, the title of which stands at the head of this paper. In these the author has entered pretty largely upon the question of state medicine and sanitary police, and has brought a large amount of general information to bear on and illustrate his subject; while he has shown the natural and essential connexion that there is between the various branches of state medicine, and also the necessity of legislating with a proper view of that connexion. While we do not subscribe to the entire of our author's medical polity, we are ready to

[a] The just concluding session of Parliament affords ample evidence of the truth of this statement.

admit that he has written six highly interesting and instructive essays; and that, were a tithe even of his suggestions embodied in a system of state medical police, the country would be greatly benefited thereby, and England would be removed from the anomalous position of being nearly the only great European state in which a code of laws for the public health does not exist.

But it appears, in fact, that England is not yet prepared to frame such a code; every effort at medical legislation for the last few years has signally failed, and the sanitary enactments of the same period are very defective. We have already expressed our opinion as to some of the causes which produce the effects referred to, and we need not repeat it here, beyond stating our belief that until sanitary science becomes a part of general education, and until medical men and bodies merge their clashing interests in the common cause, no government or persons could frame any useful measure of medical police which would pass the legislature.

Mr. Rumsey, the author of the Essays under notice, is already known to the profession and public as the writer of several excellent papers on subjects connected with the public health, and the present Essays certainly do not detract from his character as an accomplished writer; the style is good and perspicuous, the matter interesting and comprehensive. He has left few, if any, points of moment untouched; and he has moreover, we think, established the claim that "state medicine," in its several, yet indivisible, relations, has upon the Government, the Legislature, and the people—upon the last especially, as the masses would be most benefited thereby. How this claim shall be allowed remains to be seen; but we are satisfied that, in our rapid advancement in literature, science, and art, the art of living long and living healthily—the science of preserving the health of communities, and the literature which treats of that science—will not be overlooked.

In a former Number of this Journal (August, 1853), we had the privilege of bringing under the notice of our readers Dr. Chevers' admirable work on "Vital Statistics and Public Hygiene." The Essays under consideration go over much of the same ground; on some points take more comprehensive views, and confirm the general propositions of the former writer; while the works, taken together, constitute an excellent reference for all who desire information on a question of vital importance.

That the reader may be aware of the tendency and scope of these Essays, we shall now refer to the several heads under

which Mr. Rumsey has treated his subject; before doing so, however, we shall give some extracts from the preliminary part of his first essay, which explains the object he had in view in publishing his Essays:—

"Had it been my intention," says he, "in the following pages to treat methodically of all the various matters pertaining to the care of the public health, for which either the enactment of special laws, or the delegation of discretionary power to constitutional authority, has been found necessary in this and other countries—I should, both as regards matter and arrangement, have drawn more or less from some of the most approved treatises, chiefly German and French, which have been published within the last eighty years on the Continent; for, to say the truth, this subject has never been systematically written upon in England."

En passant we may remark, that Dr. Chevers' book was written and published in India, a few copies only having been sent to this country.

"Or," he continues, "had I wished to describe in detail the most successful methods of effecting a few sanitary objects, special in kind and limited in application, I should have examined the measures now in progress in certain cities and towns, at home and abroad; I should have compared these, not merely with some of the public works and municipal regulations of ancient towns, but also with those other more appropriate and practicable projects suggested in the many pamphlets and reports on sanitary affairs which have deluged this country during the last twenty years.

"My design is, however, of a more elementary character, as regards this introductory Essay; and, in some respects, of a more temporary nature, as regards the subjects considered in the following Essays.

"In the first place, I wish to draw attention to the UNITY OF STATE MEDICINE; and to point out the connexion, legislative and administrative, which ought to exist between its several departments; and partly, also, to induce those whose leisure, scholarship, and opportunities for research qualify them specially for such a task, to bring before English readers a correct account of the rise, progress, and present condition of medical and sanitary police in Europe.

"Secondly, and mainly, I am anxious to show the singular absence of comprehensive design which has characterized all attempts at legislation in this country, whenever circumstances or events have imposed on Government and Parliament the necessity of adopting measures either for preserving the health or diminishing the sickness of the people, or for regulating the education and duties of the medical profession. . . . . .

"The outline of a Sanitary Code," he continues, "traced in the succeeding chapters of this Essay, may also serve as a normal pro-

ject, or theoretical standard, by which to test some of those errors, anomalies, and short-comings of English sanitary legislation and management, which will have to be noticed in subsequent Essays."

Having thus introduced his subject, Mr. Rumsey goes on to discuss, under the head of "State Investigation"—"*Statistics*," "*Topography*," and "*Jurisprudence*." Under the head of "Sanitary Regulations" he introduces "*Preventive measures*," and "*Palliative measures*." The last division of this essay is, "Administrative Machinery," which includes "*Education Agents*," and "*Official authorities*." The second essay is on "Education in the healing and health-perserving arts." The third essay is "On sanitary inquiry," and discusses "*Some of the characteristics of ancient and modern inquiry*," "*Subjects on which public sanitary inquiry needs extension and permanence in England*," and the "*Investigation of epidemics*." The fourth, fifth, and sixth essays treat of the "Medical care of the poor," "Local sanitary administration," and "Certain departments of health police, in their relations with local sanitary administration." This summary will enable the reader to estimate the extent of the work under review, and will show that there are few questions connected with the subject which have not been noticed by the writer.

We have already stated that we do not coincide with all of the author's views on questions of medical polity; but this difference of opinion does not prevent us from saying that we have reaped pleasure and profit from the perusal of his book; but that, on the contrary, we can recommend it to the notice of all persons, either in or extern to the profession, who take an interest in promoting the health and happiness of the community; in its pages they will find much interesting matter, much for reflection, and much reason to cause them to deplore the ignorance, apathy, and selfishness which have so long prevented the advance of sanitary reform.

We now take leave of the author with feelings of deep respect, and we cordially desire for his Essays the warm reception by the public to which they are entitled: trusting that they may be the means also of stirring up fresh inquiry and renewed activity regarding the most important merely temporal matter which can exercise human intelligence, or engage the solemn attention of Governments and legislative assemblies.

A First Trip to the German Spas and to Vichy: with an Essay on the Nature and Uses of Natural Spas, and a Tabular View of the Composition of several Natural Waters. By JOHN ALDRIDGE, M. D., M. R. I. A., &c. With Fifteen Illustrations. Dublin: M'Glashan and Gill. 1856. 8vo, pp. 206.

WE confess to a certain degree of disappointment with Dr. Aldridge's book. We had expected a sober disquisition on the medical properties of those spas which he had visited in this, which he announces to be his first trip, containing directions gleaned on the spot as to the drinking of the mineral waters, that might serve as a guide to the physician in prescribing them; instead of which, we find its pages to consist of notes of a tour made by the author and his wife, in company with Dr. O'Ferrall and his sister, written in an easy, gossipping style—too much so in parts—well calculated, perhaps, to serve as an itinerary or guide-book for those who may choose to follow the route taken by his party. With its merits or demerits, as such, it is not our province to deal in the pages of this Journal; we shall, therefore, merely notice the concluding chapter, which is entitled, an "Essay on the Nature and Uses of Natural Spas." After some general observations on the nature of mineral waters,—in which he proves that they have no secret electricity in their composition, nothing peculiar in their temperature, do not originate in the bowels of the earth, and are not composed by Nature in marvellous laboratories of her own,—he enunciates the opinion that "the mere watery menstruum in mineral waters is an agent of powerful energy for good or evil, and that we are entitled to attribute to its influence very many of the physiological and therapeutical effects acknowledged to be derived from their employment." He also ascribes a good deal of their efficacy in the treatment of disease to the carbonic acid which they contain. Their effects in many maladies are, however, we think, much more legitimately accounted for in the following extract from his pages, which also will furnish our readers with an illustration of the light, readable style in which the book is written:—

"The universal practice at the various spas sufficiently points out the means which experience has found to be effectual in promoting, to the fullest extent, the good effects derivable from spa drinking, and in obviating its dangers. This practice consists everywhere in drinking the waters in divided portions, on an empty stomach, and in taking exercise between the draughts. But how is it possible to get patients to adhere strictly to these simple rules?

The answer is, by means of discipline. The rule is, to assemble, at an early hour, to drink the first beaker—the matin hymn marks the adhesion to this rule; and the subsequent performances of the band, with the intervals between the pieces, serve to point out, with a certain system and precision, the periods of ingestion, and the times of intervening exercise. We all know the powerful influences of example and companionship. When once one has engaged in any practice, in the society of others, it is natural to persevere through mutual emulation, and you feel ashamed to be thought, even by strangers, as relaxing in the energy with which you commenced. But there are other inducements which make the spa frequenter steady in his adhesion to the routine practice,—fine music on a summer's morning has its peculiar attractions,—the scenery at most of these watering-places is very charming,—people form agreeable acquaintanceships, which they desire to cultivate,—and there is a pleasurable curiosity in observing whether your co-promenaders will keep up their attendance as assiduously and constantly as yourself. The spa proprietors, generally, spare no pains to render the promenade agreeable, by abundance of flowers, sometimes by the play of pretty fountains, &c.; and, to obviate all objections, by suitable erections—colonnades to protect from the rain, rows of trees to shade from the sun, &c. Numerous booths and pretty shops soon spring up in the neighbourhood of the promenade, and afford additional profit to the proprietors, as well as amusement to the visitors;—and, by acting upon the common principles of humanity, by means of these and other influences, the strict rules upon which the utility, and indeed safety, of the use of the spa depends, are successfully carried into practice.

"It must be acknowledged that the accessories to the use of the spas are quite sufficient in themselves to account for the improvement in the general health, so usually experienced by their visitors, without attributing any influence to the waters. Early hours, regular habits, cheerful occupations, pure air, and the absence of solicitude, are all powerful hygienic agents, which are in constant exercise at these watering-places. There are some cases of broken health or actual disease, which cannot be advantageously treated at home: it occasionally happens that, with such patients, a necessary preliminary to all medication is the breaking up of former associations; the complete withdrawal from business and its responsibilities; and surrounding the invalid by totally new circumstances. In such cases, there are few retreats which present so many advantages as a spa, particularly in Germany, for obtaining the end proposed; and among these, it is no small recommendation, the prevalence of the kind of discipline to which I have adverted, and to which the patient almost unconsciously conforms."

The chapter concludes with a short notice of, and a few general remarks on, some of the most celebrated spas, under the divisions of alkaline, chalybeate, saline aperient, and sul-

phureus—a Table of the composition of twenty natural mineral waters being appended for reference.

To any person about to visit the German spas we can recommend Dr. Aldridge's little book, as likely to afford them much useful, and some entertaining information; but we regret that we cannot say it supplies a want much felt at times by the physician in his study—namely, that of a hand-book to guide him in the prescription of those valuable therapeutical agents.

Records of Obstetric Consultation Practice; and a Translation of Busch and Moser on Uterine Hemorrhage (with Notes and Cases). By EDWARD COPEMAN, M. D., F. R. C. S., Physician to the Norfolk and Norwich Hospital, &c. London: Churchill, 1856. 8vo, pp. 223.

DR. COPEMAN is known to British accoucheurs as the editor of "Crosse's Cases in Midwifery," a review of which we published in our twelfth volume. He now appears before us in the higher character of an author. His work is divided into two parts. The second of these is an Essay on Uterine Hemorrhage, translated from Busch and Moser's "Handbuch der Geburtskunde," with additional notes and cases. To this we need not again revert. It is a dry, scholastic essay, redundant in classification, but very meagre in practical details. Professing to comprehend all varieties of abnormal hemorrhage from the womb, it fails to give a really good account of any, and all through is sadly deficient in that practical information so indispensably required at the bedside of a patient.

The first part of Dr. Copeman's book consists of short essays, setting forth the author's views on the subject of puerperal fever—on the use of the vectis—on the induction of premature labour—on puerperal convulsions—and on the operation of craniotomy. These we shall examine *seriatim.* In none of them, excepting, perhaps, the one on the use of the vectis, do we find any novel practice or original observation put forward. Even the exceptional chapter cannot be considered to contain anything absolutely new; for the feature which prominently distinguishes it is, an immoderate and unjustifiable fondness for the use of obstetric instruments, and this, unfortunately, is no novelty! Delaying the employment of instruments too long is, no doubt, a great mistake; but it is equally wrong resorting to them too early: and the strong

tendency of young practitioners is to the commission of this latter fault.

The author's remarks upon puerperal fever we have read with very great satisfaction. His portraiture of the disease, in one form at all events, is, we believe, true to nature, and his observations upon its mode of treatment are most valuable, sustained as they are by an enlarged experience. His principal object in this paper is to show the great utility of turpentine in the typhoid form of the disease, to which form nearly all his cases belonged. The symptoms which characterize it are, initiatory rigor; a small, *frequent* pulse; some uneasiness or pain in the abdomen, and always tenderness in the hypogastric or iliac regions under firm pressure; abdominal tympanitis; the tongue pale and flabby, or *streaked* and dry; dull headach; nausea, and sometimes vomiting; heavy breathing; depraved lochial secretion, &c. &c. Venesection in this variety of the disease he denounces as "a most dangerous proceeding," and notwithstanding Professor Meigs' bold assertions to the contrary, we are satisfied of the correctness of the author's statement. It is well to bear in mind that all Dr. Copeman's cases occurred in private or dispensary practice; for the idea is very prevalent amongst the public, and medical men too, that this low, adynamic form of puerperal fever is only to be met with among hospital patients. For the last five and twenty years this disease has been assuming more and more a typhoid type, and practitioners have been resorting to a more boldly stimulating plan of treatment. In the epidemic which raged in this city and neighbourhood during the winter 1854–5, and the spring of this latter year, the disease was of a markedly low, adynamic character; and Dr. M'Clintock tells us, in his published account of the epidemic as it appeared in the Rotunda Lying-in Hospital, that without the liberal employment of stimulants, the progress of the malady could not be successfully checked[a]. We doubt not, however, that—to borrow the language of Dr. Meigs, the uncompromising but inconsistent advocate for the lancet—"As there will reign, for a series of years, an atmospheric constitution to render venesection less needful and useful, so there must also arrive other series of years during which the epidemic constitution of the air shall compel all discreet and wise physicians to oppose the progress and subdue the very existence of disease by the promptest and most powerful of the antiphlogistic resources of our art; I mean blood-letting"[b].

[a] Vol. xix. of this Journal, p. 454. [b] On Child-bed Fevers, p. 235.

Of the use of leeching Dr. Copeman speaks in more qualified language. A great abdominal tenderness he regards as the condition that would seem most to require it; but yet thinks it, in many cases, inadmissible after the first day or two of the disease. On this point we are somewhat more antiphlogistic than the author, and we have found that in this, as in other typhoid diseases, *local* depletion and *general* stimulation may be most advantageously combined.

The mercurial treatment of puerperal fever Dr. Copeman believes to be "almost always attended with disastrous and fatal results; urging on the disease to a more rapid termination." He believes it to be "positively injurious," and only prescribes mercury in a single aperient dose, at the commencement of the disease. As this agent has been very much extolled, and is still largely used in the treatment of puerperal fever, it may be interesting to compare the experience of our author with that of another observer, many of whose cases occurred about the same period as those of Dr. Copeman. In his paper already referred to, Dr. M'Clintock thus expresses himself:—"*Mercury* was tried in a large proportion of cases, and in various doses, but I cannot say I ever observed any decided improvement to have been traceable to its specific action on the system. In some instances the disease progressed with such frightful rapidity that absolutely there was not time for the drug to make an impression on the constitution. In other cases the mercury seemed to produce diarrhœa, and had, therefore, to be laid aside. In two cases death occurred, notwithstanding that ptyalism had been excited. As a purgative, it was in constant requisition, but always combined with or followed by other cathartics; and in this way it was found, as it always is, an efficient and useful agent." On this point, then, the experience of these two authors has led them to the same conclusion respecting the therapeutic value of mercury in the low form of puerperal fever.

The remedy which, in Dr. Copeman's hands, was most successfully employed against this low, asthenic form of puerperal fever, was oil of turpentine. He administered it internally, in half-drachm doses, every three or four hours, and applied it externally to the abdomen, on cloths wrung out of hot water—in fact, just as it was recommended to be used by Dr. Brenan, of this city, who was the originator of the practice. Since Dr. Brenan wrote upon the turpentine treatment of puerperal fever, Dr. Douglas and Dr. Copland have been the warmest advocates for its employment. Many other practitioners, however, have also tried it, but derived no benefit from

its employment. In the *malignant, epidemic variety* of puerperal fever, we believe that turpentine has signally failed to realize the expectations formed of its efficacy. It has been tried, at different periods, in the Lying-in Hospital of this city, by Clarke, Collins, Johnson, and the present Master, Dr. M'Clintock (as we learn from his Report, already quoted), but with little or no success. From careful examination of Dr. Copeman's cases, we cannot regard them as examples of the *genuine malignant* puerperal fever; but rather of a low, ataxic form, no doubt, coming on at a later period (sometimes the eighth or ninth day), running a longer course, less fatal, and altogether more tractable. In this form, however, we have generally considered turpentine to be one of the best remedies, and in this opinion we are fully borne out by the experience of Dr. Copeman. He relates in all twenty-one cases in which the turpentine was used; of this number fifteen were cured, and six died.

This entire chapter on puerperal fever, though relating to only one form, and that not the most fatal, of the disease, we have read with much satisfaction. The histories of all the cases are given in detail. They are very instructive, and deserve a careful perusal.

Having said so much in praise of this book, we conscientiously believe that we can add little more in the same strain, and would, therefore, gladly stop here, if such a course were compatible with the strict discharge of our critical duty.

The second and fifth chapters relate to the use of certain obstetric instruments—viz., the vectis, the perforator and the crotchet—and these two we shall consider together. Dr. Copeman is a warm advocate for the vectis, and deems it a superior instrument, in point of utility and power, to the forceps. He seems to think himself almost singular in this respect, forgetting, or not knowing, that Lowder, Gaitskill, Dease, Breen, and even Denman (the highest obstetric authority), with many others of less note, all were confirmed in the same opinion. The instrument he has been in the habit of using, and of which the measurements and a drawing are given, is very much curved towards the end of the blade, so as to enable the operator to make traction to a great amount, without much risk of its slipping or losing its hold. Its employment as a lever he entirely discountenances. It is evident the vectis is a hobby of Dr. Copeman's; and, conformably thereto, he rides it to death. We doubt not he possesses great and uncommon dexterity in its use,—by long practice he has acquired this great degree of manual skill. But, even so, we never can

think him justified in using it "when the os uteri is dilated only to the extent that would admit the blade of the instrument." Such a proceeding must be regarded by every rational and prudent man as most reprehensible. We cannot suppose that such a use of the instrument could be warranted on any sound principle of practice. We freely confess that we were prepared for some extreme opinions in this work relative to the vectis, from the fact that between the years 1835 and 1845, Dr. Copeman used the instrument, in his own practice, *once* in every $9\frac{3}{4}$ cases! This we learn from his statement at page 12 of "Crosse's Cases." Nevertheless, it did certainly astound us to find him recommending it where the os uteri was only one-third or one-half dilated. The fact of a man's having done this on some two or three occasions, without injury, is no proof that the proceeding is safe. We cannot designate such proceedings otherwise than as the most reckless employment of instruments. Mr. Crosse's proportion of instrumental cases was *one* in *seventeen*, nearly; and yet, when reviewing his experience of obstetric instruments, he candidly admits:—"I am come to the conclusion that I have used them more frequently than I ought to have done." Dr. Copeman relates two cases in which he had recourse to the vectis before the *os* was fully opened. In one of these (Case II.) the first stage was considerably protracted, and "the anterior lip of the uterus was beginning to swell from being nipped between the head and pubes." It does not appear that any means were used to promote the dilatation of the os, or to disengage its anterior lip, before resorting to the vectis. The other case we must transcribe literally:—

"CASE XXII.—January 12, 1854. Mrs. C., aged twenty-eight years. In labour with her *first* child at full period. Mr. —— had been sent for at *six* A.M., and remained with the patient till *four* in the afternoon; at this time he requested my attendance on account of the pains being severe and exhausting, and the *head impacted at the brim;* the uterus had been very slow in dilating, because the head was not pressed down upon it. I arrived at *five* P.M., and thought I could introduce my vectis through the os uteri, and gently assist the head downwards; and as the patient was beginning to have unfavourable symptoms, rapid pulse, restlessness, and apprehension, Mr. —— concurred with me that some artificial assistance ought to be rendered as soon as possible. I, therefore, applied the vectis, and, by gentle traction during pains, succeeded in *about an hour* in delivering her of a fine living male infant. The *os uteri was about two-thirds dilated* when I introduced the vectis, and readily gave way when the pressure of the head was brought to bear upon it. Placenta followed naturally. There was *considerable soreness* and *some free*

hemorrhage afterwards; but we left her, at eight P. M., in a very comfortable and satisfactory condition. She had no unfavourable symptom."

We feel constrained to pass some strictures upon the above history, and especially on the practice pursued in the case. It is fair to assume, in the first place, that labour began at 6 A.M., or shortly before: in ten hours from this time the head is reported to be "impacted at the brim," and yet, an hour after this, the os uteri was only "about two-thirds dilated;" at 5 P.M., i. e. about eleven hours from the setting in of labour, the first stage being not yet concluded, Dr. Copeman sees the patient, and is of opinion that "he could introduce his vectis through the os uteri, and gently assist the head downwards." Shortly before this, viz., at 4 o'clock, the pains were "severe and exhausting," consequently, it was not from want of any pressure on the head that the labour was delayed: we are at a loss, then, to understand with what definite object or intention the instrument was used. But still more are we perplexed to discover the necessity for any direct interference whatever with the progress of the labour. It was the woman's first child—she was only eleven or twelve hours in labour—and the first stage was but two-thirds completed. Why, then, have recourse to instruments of any kind? The only answer to this is, that she "was *beginning* to have unfavourable symptoms, rapid pulse, restlessness, apprehension." It is right to mention, that Dr. Copeman did not use the instrument on his own sole responsibility: he tells us that "Mr. —— concurred with him that some artificial assistance ought to be rendered as soon as possible." We think that gentleman is under a weighty obligation to the author for withholding his name. Let us just look again at these "unfavourable symptoms." The patient is "beginning" to have—"*rapid pulse*"—how could it be otherwise with an undilated os, —severe exhausting pains, and restlessness;—it would be strange indeed if the circulation was not quickened under such circumstances. "*Restlessness*"—does not every tyro know that this is a constant characteristic of the primary stage of natural labour, and especially so of first labours? "*Apprehension*"—is not this also a predominant feature in the moral condition of a patient during the dilatation of the womb? Besides, this patient may have been a person of some penetration and discernment, and, if so, need we wonder if her "apprehensions" were somewhat awakened! The vectis is introduced within the uterine cavity, and "about an hour" elapsed before the child is born, and the instrument withdrawn. For the space of one hour this iron instrument, whose blade is $8\frac{1}{2}$ inches long,

and 2⅛ inches broad (at widest part), is in contact with the vagina or uterus, or both. The undilated os, which had resisted the effect of "severe and exhausting pains," "readily gave way [rent?] when the pressure of the head was brought to bear upon it." After such a delivery, it surely can excite no surprise that "*considerable soreness*," and "some *free* hemorrhage" should take place: were it otherwise, we should indeed have been greatly astonished. The concluding sentence in this "strange, eventful history" is ambiguous as to time, but we shall suppose it relates to the subsequent progress of the case. Now, if there be really any institutes of midwifery, any fixed principles of practice—if the authority of such men as Denman, Lee, Johnson, Dubois, Ashwell, Collins, be entitled to any respect—why, then, we hesitate not to condemn the practice, both negative and positive, described in the above history as being in the highest degree censurable. If it be good practice, then let us go back to the days of Tristram Shandy, and learn the art of midwifery at the hands of Dr. Slop!

Many of the histories are altogether too brief, and merely serve to inform us that a particular "treatment had been found successful in the hands" of the narrator. This is not fulfilling the expectation we were led to form from the Preface, nor the ostensible purpose for which they are recorded. In reference to the perusal and relation of cases, the author thus writes:—

"I have always been strongly impressed with the idea that no more useful mode of instruction can be adopted; not simply because it is advantageous to know that such and such treatment has been found successful in the hands of this or that person, but more from the fact that by thus having various kinds of management brought into view, the mind is led, as it were, to the contemplation of the subject, to just reasoning concerning it, and to the due consideration of what plan, amongst others recommended, may be best for us to select in each particular instance."

Impaction or locking of the head in the pelvis does not, according to Dr. Copeman's practice, constitute a hindrance to the use of the vectis. In some of his cases this state of things is reported to have existed, and even considerable deformity of the pelvis also. Notwithstanding, there is no instance of failure among the twenty-four cases recorded in illustration of the use of the vectis. From their perusal, one is almost led to suppose that, in Dr. Copeman's hands at all events, it is an infallible means of delivering women. That the child does not always come off uninjured is shown in Case 11, viz., "Right upper eyelid cut through, and nearly separated.

A wound through the integuments behind the right ear; and an extensive bruise over the prominent part of the right parietal bone." These accidents, however, the author attributes to previous attempts at delivery with the forceps. From another chapter we learn that, even when used by the author, the vectis has, on many occasions, signally failed; no doubt, these were cases which we would have thought totally unfit for it. In *seven* craniotomy cases the vectis had been unavailingly tried, and in five of these we know Dr. Copeman was the operator, for he himself states so. In some of these cases the practice pursued was such, we feel constrained to avow it, as would have disgraced the most ignorant midwife, and, if the patient had not chanced to recover, might have justly exposed the attendant to a criminal prosecution. For example: a woman, aged 28, falls in labour of her first child at 3 o'clock A.M., the first symptoms being the escape of the liquor amnii. In sixteen hours the vagina and os uteri are "quite dilatable;" the head presenting, and a large coil of the funis in the vagina. Three hours later—the os uteri not yet being fully dilated—an attempt was made by the author to deliver her with the vectis, although he had previously ascertained that the conjugate diameter of the brim of the pelvis "appeared not to measure more than two inches." What, we ask, could be more absurd and chimerical than to suppose that "the head of a fœtus at full term could be brought through such a pelvis, without reduction of its bulk." Chamberlen scarcely attempted more in his trial of the forceps at Paris.

With reference to the use of instruments generally in midwifery, and particularly of the vectis, there are some excellent observations by Mr. Crosse, in Copeman's edition of his "Cases in Midwifery," and so pertinent to the present occasion that we cannot forbear quoting them:—"The use of instruments to hasten labour may be sufficiently discouraged in books, and the cases in which they are strictly required clearly pointed out in lectures; but among the circle of practitioners in midwifery, under my own observation, I have the means of knowing that there are many who indiscriminately employ them, *against all rule, reason, or propriety: I refer more particularly to the vectis,* with which I am told delivery is easily expedited, without any injury to the mother. This may be generally stated with truth by those who, always armed with this weapon of offence, employ it on every occasion that they approach the bedside of a female, when the child happens not to be born before their arrival; because a good pelvis, relaxed parts, and an advanced position of the child's head (the state of things in

a great majority of patients at the time the accoucheur is sent for), enable him to effect delivery with a single pain, and so little force, as shall leave all parties safe and uninjured. But such, however, are not the circumstances that call for the employment of the vectis, though I believe it is better fitted to these cases than to any other, having, in many instances of real difficulty, seen it attempted to be used, and relinquished for the forceps." It is evident from this quotation that Mr. Crosse and Dr. Copeman hold widely different views respecting the value of this instrument.

All through we find, in these histories, the most utter recklessness in the use of instruments. Thus the first of the craniotomy cases is one of very great rigidity of the os uteri,—an unfavourable condition, no doubt, though by no means a dangerous one, as it can almost always be overcome by proper remedies, none of which, however, seem to have been here employed. At his second visit, in consultation with two surgeons, Dr. Copeman finds the "head resting on the brim, and the os uteri dilated to about *one and a half inches* in diameter, thick and unyielding; pulse getting rapid, and patient very anxious for relief." Whereupon, he "*tried the vectis, but could not move the head.*" Fully to comprehend the enormity of such a proceeding, we must again remind the reader that the vectis recommended and used by Dr. Copeman has a width of *two* inches and *one-eighth*, and this, it is to be presumed, is the instrument that was thrust through "a *thick and unyielding* os, dilated to about one inch and a half." And this was done, not only in the absence of any evidence of the child being alive, but in the teeth of presumptive evidence of its death! This leads us to remark what little attention seems to have been bestowed on the *auscultatory* evidence of the life or death of the fœtus. On two or three occasions only do we find any mention of the stethoscope having been used to solve this very momentous question; and even in these cases not till the question of instruments was raised, which is a manifest disregard of the fundamental condition on which its value as negative evidence rests.

The chapter on the induction of premature labour contains three cases in which labour was excited by passing an œsophageal tube some inches within the uterus, without breaking the membranes of the ovum. The author seems to think this an original mode of inducing labour, whereas it was recommended by Lehman, of Amsterdam, eight or ten years ago, and had been previously practised by Zuydhock.

The author's remarks upon puerperal convulsions, though

very brief, are sound and judicious. He is a strong advocate for large bleeding in this disease, and next to venesection, in the list of remedies, he places opium. He does not attach much value to premonitory symptoms, or to prophylactic treatment,—on both which points we differ with him.

We now close our notice of this book. It contains one good chapter—that on puerperal fever—and this is its only redeeming feature. The illustrations of the use of the vectis we have had to criticise severely; for, though they show the author to be an adept in the use of the instrument, still, they also show, we think, a great want of judgment in the selection of proper cases for its employment. On the whole, we think that Dr. Copeman's obstetric records might very well have had a place in any of our medical periodicals, instead of being presented to the profession in the form of a book. Are we to regard this book as an index of the present state of midwifery among the provincial practitioners of England? If so, it furnishes the advocates of female midwifery with the most cogent argument.

A Practical Treatise on Stammering: its Pathology, predisposing, exciting, and proximate Causes, and its most successful mode of Cure scientifically explained. With Remarks on the Principles which should guide the Practitioner in the treatment of all purely Nervous Diseases. By J. H. Ayres Poett, M. D., M. R. C. S., &c. London: Churchill. 1856. 8vo, pp. 50.

The object and intention of the pamphlet, of which the above is the title-page, may be gathered from the following extracts:

"My name is identified with the successful treatment of stammering; and this Treatise is the first attempt yet made to scientifically explain the proximate cause of stammering, and unveil the mysteries of its system or mode of cure.

"I believe I am the only British practitioner who ever dedicated himself exclusively to the cure of this *and other nervous diseases of childhood.*"

Dr. Poett's system of cure is comprised in a rule which—

"Implies a peculiar, monotonous, drawling mode of speech, in which all the syllables have equal time. . . . . As the rule is morally impossible to practise in every-day life, it is evident that it can only be made effective either in one's own home or in that of the professor, who, like myself, dedicates his time to insuring its practice."

The value of the remarks on nervous diseases generally may be inferred from the following passages :—

"The nervous system is supplied by the male—the vascular, or circulatory, by the female"! "When the ovum of the female is vigorous, the vascular system will be in proportion, and this will consequently secure a good nervous organization; which explains why clever mothers have generally clever children, and not the fathers"!!!

This will sufficiently enable our readers to form some idea of the author's nervous organization, and the amount of cleverness to which it has given birth; they may thus be saved the trouble of further troubling themselves with Dr. Poett's "Principles and Practice in the Treatment of Stammering."

Clinical Lectures on Surgery. By M. NÉLATON. From Notes taken by WALTER F. ATLEE, M. D. Philadelphia: Lippincott and Co. 1855. 8vo, pp. 755.

DR. ATLEE attended the Clinique of Professor Nélaton during a period of three sessional courses; and, returning to America, arranged his notes of this distinguished surgeon's lectures, delivered in the wards of the clinical hospital attached to the "Faculty of Medicine at Paris:" embodying the information thus obtained in a volume approaching as closely correct descriptive sequence, as was possible in detailing cases possessing very often scarcely a single feature in common, except those founded on a violent nosological arrangement, or presupposed conviction, arising from some unproved pathological postulate. In the attempt to produce a perfect, or even a comparatively complete work on clinical surgery, difficulties, of no small amount, beset an author, resulting from the very nature of the subject, and its special individualities. If surgery represented merely an art, with a system of mechanical laws governing its practice, suited to exigencies foreknown and invariable as to their character, it would then require only a systematic classification, division, and subdivision of its elementary constituents, to invest its description with all the precision of a mathematical study, whose highest tendencies must ever be objective. But inasmuch as Surgery, necessarily allied with its kindred branch, Medicine, can only be classified into lesions that in their extremes possess but a distant and remote connexion, and that probably in some manifest and visible element, implying, but far from proving, a similarity in the

nature and causation of the affections, not even, in many cases, representing the essence of the existing disease, but rather some prominent character rendered striking to our senses in virtue of the distress it causes to the patient,—although scarcely of itself attended with danger,—it requires the highest exercise of the subjective faculties to create a correct and definite relation between diseases, which, though of the same class, constantly exhibit phases in their progress, which cannot be reconciled with any preconceived rules or precepts. In prelective teaching the lecturer describes a disease with its natural history, or the objective signs and subjective symptoms usually associated with its presence in the human body. But in clinical teaching the surgeon describes the *patient* as he labours under the excitant of altered function, modified by age, sex, temperament, habit, &c.: in fact, when lecturing on a disease didactically, we deal with principles, whilst bedside teaching presumes a knowledge of principles, and treats of individual details. The former admits of preparation immediately antecedent to the delivery of instruction; for the latter the culture must be life-long, that knowledge merging into wisdom in the mental organization of the teacher, shall cause his ideas to respond to the unpremeditated necessity of the moment. Any man possessed of the faculty of recollection, and gifted with ordinary eloquence, although otherwise not beyond mediocrity, may attain perfection in didactic lecturing; but the capabilities requisite for a successful clinical teacher range beyond general mediocrity, and revolve within a circle of as pure a system of philosophy, as that which encloses the highest psychical pursuits. Hence, clinical works are few, but generally representing an unquestionable order of merit in relation to practical utility, and are calculated to direct especially the student's attention to those clinical characters of affections that are obscure, and, therefore, with difficulty elucidated; that are sensibly obvious, yet hard to reconcile with causation, and impossible to conjecture as to their future influence on the case; that are warnings of danger and destruction of life, and, therefore, the more valuable, as judicious and legitimate therapeutics can never be based on the certainty of safety, but rather on the hope that the amount of danger realized to our consciousness may be successfully combated by the adaptation of artificial assistance to the resources of nature. Therefore, the work becomes an eclectic record of surgical symptoms, their value corresponding with their utility, as tests of the severity of the lesion which has occurred, as explanatory of its nature, progress, and results, and as the principles on which the treatment should be founded.

In order to insure a judicious eclecticism, experience must of necessity guide the teacher in his remarks on the special case; and this power of grasping the most important characteristics of the affection is the true criterion by which a just estimate should be formed, as to the value that ought to be attached to clinical records, as practical precepts derived from past experience and close observation.

The name of Nélaton, and the high character which he has deservedly attained as one of the most eminent and original thinkers of continental surgeons, lead us to treat with grave consideration and deep respect opinions emanating from such a source, particularly as Dr. Atlee seems to have published the work with the Professor's cognisance and permission. But —and we say it with a due regard for M. Nélaton's fame—the volume contains many views which British surgeons will hesitate before receiving as principles to guide their future practice, until further experience of similar cases gives additional weight to precept, and more than authority to sanction the adoption of many novel and apparently strained expressions of individual opinion. These will become more palpable in the further progress of our notice of the volume, which contains materials of very unequal value; yet so much that is practical appears in its pages, we approach its review with the most favourable feelings towards the real author of the Surgery and also towards the editor of the work.

The volume consists of twenty-three chapters, each being devoted to several diseases of the same class: the editor adopting the system of detailing the case, and subsequently expressing the opinions of the Professor on its peculiarities, and the line of treatment likely to be most successful in producing a favourable issue of the disease. At page 34 two cases of anthrax are described, and the Professor takes the opportunity of making some remarks on the former method of treating this disease. Agreeing with Dupuytren, he ascribes the affection to inflammation of the dermoid processes of areolar tissue sent into the cutis; a similar view being advocated by Sir B. Brodie, in opposition to the opinion that this localized but destructive form of inflammation results from disease of the sebaceous glands; but, whilst admitting this peculiar locality as the seat of the affection, he denies the possibility of the assumed strangulation of these processes, and ignores the practice of incisions as being worse than useless—in fact, as the infliction of a certain degree of pain and irritation, without any commensurate advantage. "Leave them alone," he says, "and they will suppurate, openings form, and the core, which is the

result of secretion, not destroyed tissue, will escape, but, if incisions are performed, the edges of the skin retract, and healing is retarded; besides, they cannot be of any special use, as they will not open all the dermoid processes assumed to be affected."

We cannot subscribe to this doctrine, nor will any practical surgeon admit the justice of the Professor's views in attempting to render obsolete a plan of treatment sanctioned by experience and observation. In this country, the indications demanding incisions are better understood than seems to be the case in the Hospital of the Faculty of Medicine. We do not seek to relieve the strangulation of each individual dermoid process by acting immediately on its structure, but endeavour to put a period to a passive system of congestion, by unloading the dilated vessels of the part. It is thus the crucial incision proves of utility, and arrests the further destruction that will surely ensue if allowed to advance to spontaneous suppuration. He seems not exactly determined on this point of practice, as he corrects his precepts in remarking on the peculiarities of the second case, where he conceived that a diffused phlegmon supervened on an original anthrax. In such cases the utility of incisions is admitted as the most salutary line of treatment, but we cannot recognise the complication as described by M. Nélaton. The case is simply an anthrax of an aggravated character, neglected in its earlier stages, and pursuing the exact course that any experienced surgeon would predicate from its history. Still, in addition to the advantages accruing from incisions, as arresting increase, and diminishing disorganization of tissue, the well-known case, recorded by Sir B. Brodie, warns us to avoid delay in giving a free outlet for the putrid contents of these tumours—his patient having succumbed to the effects of blood contamination, in consequence of procrastinating the practice of incision. On the effects of locality as influencing the fatal results of carbuncle, on the appearance of the discharge, on dry or non-suppurative anthrax (Travers),—these are points concerning which we would have much desired to have learned the views of M. Nélaton, and conceive them to be circumstances of sufficient clinical importance to have obtained at least a cursory notice in a volume having any pretensions to be considered even as partially representing the present state of practical surgery.

The editor objects to the term senile gangrene, as the disease *often* appears in young persons and children. Now, Sir B. Brodie states, that the earliest period of life at which he encountered it was in a dissipated man, thirty-six years old,

who was absolutely in the state of senility as regards constitution; and even here an exciting cause was necessary to produce its supervention, it arising from a necessary operation on the foot. We can fairly reconcile this apparent lapse by observing, that M. Nélaton confounds the arteritic form of the affection with that supervening on ossified arteries; a circumstance first noticed by Cowper, the anatomist, but denied gravely by Pott, an author who is frequently quoted as countenancing the idea. The substitution of the term spontaneous gangrene is certainly unnecessary, particularly as Mr. Travers has introduced a much better and more applicable term, when he describes the disease as passive gangrene; and we would recommend Mr. Atlee to study with diligence Brodie's "Lectures on Pathology," and "A further Inquiry into the Effects of Constitutional Irritation," by Travers, from which we are confident he will derive much information. Finally, it is remarked that M. Nélaton does not consider operative interference as judicious. Modern surgery has been extended by the recognition of the utility of amputation in some cases of senile gangrene; and when we reflect on the cause of death in these affections, as resulting from asthenia, or exhaustion induced by a progressive destruction of the tissues, we are induced to anticipate the most favourable consequences from distant amputation, where the age and constitution of the patient would render the tolerance of a prolonged illness, if not improbable, at least doubtful.

At page 33 the particulars of a case of palmar wound, succeeded by hemorrhage, are detailed, where compression permanently arrested the bleeding:—

"The wound was situated in the palm of the hand, near the middle, and was one and a half inch in extent. An apparatus was applied by means of bandages, so as to exert pressure at the same time upon the wound, and also over the course of the radial and the ulnar arteries. The two rollers placed upon the arteries were prevented from being brought together by the bandage wrapped around the arm, by means of a third of much greater thickness placed between and upon them. The circular bandage, which approximated them, in this way also separated them, by forcing this third roller, as a wedge, between them. This apparatus succeeded in arresting the bleeding."

The central roller seems to us to possess more significance than that of merely sustaining those placed laterally, and exerts a beneficial influence, by perfectly checking the circulation in the anterior interosseal and median branch of the ulnar arteries; a fact which appears to have escaped M. Néla-

ton's attention as to the anatomy of this region. We regret that he has not stated his experience on Mr. Butcher's mode of making effectual pressure to the palmar region, and his subsequent treatment in reference to these troublesome accidents. An exact description of this plan appeared in a former Number of this Journal, and, being extensively subjected to the test of experiment, has proved so eminently successful as to entitle it to be considered a legitimate subject for clinical inquiry.

At page 67 a case of complicated arterio-venous aneurism forms the subject of an obscure, yet most interesting pathological study. We quote it at length:—

"*Veno-arterial Aneurism*, November, 1853.—A woman entered the wards, having been sent by a very distinguished surgeon out of Paris to be examined. Her affection was very complex; the symptoms under which she laboured were to be referred to several distinct affections.

"The condition of her tongue was very peculiar; it was larger than natural, and deformed, having here and there lumps of a peculiar bluish colour. In some places, the organ was of its normal consistence, in others it was harder or softer; besides this, its surface, particularly at the base alongside of the papillæ, was not normal; there were large violet-coloured granulations, like mushrooms, upon it. There were also violet-coloured spots upon the lower lip, externally where the mucous membrane joins the skin, and on the inside were small bluish tumours. When these places were pressed upon, the colour and also the projection disappeared; they evidently were owing to a varicose condition of the parts. The same thing, moreover, existed upon the side of the neck and beneath the jaw.

"Inside of the mouth, under the tongue, was a projection, bluish, but more pale than would be a simple dilatation of the veins. Under the jaw was another projection, and by proper pressure it was found to be the same tumour with that under the tongue. This tumour was supposed to be ranula. The orifices of the ducts of Wharton were free; when carefully wiped, the liquid was seen to issue from them.

"There was, moreover, a third order of symptoms, which could have caused the belief in the existence of an aneurism, for which affection the woman had been sent to the hospital. In the region of the carotid was a tumour, situated alongside of the larynx, and extending upwards as far as the projection caused by the ranula. This tumour, by pressure, was made to disappear with the greatest facility; it pulsated, and the pulsations were isochronous with those of the arteries; it also presented *frémissement*. This *frémissement* was very apparent; in order to appreciate it, the pressure had to be very slight. Auscultation made known a very important sign, a *bruit de souffle*, but of a peculiar character; and as this sound belongs to

but few affections, the surgeon should always examine it very carefully; this *bruit de souffle* was continuous, only at each beat of the heart it was augmented; it was what the French call a '*bruit continu avec renforcement.*'

"In regard to the functions of the parts, there was a slight difficulty in eating and in speaking, but the condition of the tongue, and the tumour in the mouth, explained this. In these cases, some patients complain very much of the sound, but this woman did not hear any. The brain in this case was not at all affected.

"These things being determined, three diseases could give rise to these symptoms. In the first place, there was a ranula, and, besides that, there were two vascular affections. The tumour of the tongue was a venous erectile tumour, and this, as is almost always the case, was congenital. The other affection was either an arterioso-venous aneurism, an aneurism by anastomosis, or else what is called arterial varix. The peculiar sound spoken of as existing in this tumour, the continuous *bruit de souffle*, is only found in three conditions, in chlorosis, and in the two affections just mentioned. In this patient it was not owing to chlorosis, for it was only to be heard on the one side, and there were none of the other symptoms of that affection. In aneurism by anastomosis, the two vessels being side by side, a lateral perforation allows the blood to pass from one to the other; generally, in the vein, an ampulla is formed, or, if not, it dilates in its terminal ramifications, that is to say, in the direction towards which the arterial blood rushes. Arterial varix is a dilatation of the artery in all directions without any known cause; it becomes very voluminous and tortuous. This affection, like the other, gives rise to the *bruit continu avec renforcement.* In false consecutive aneurism, there is sometimes a *frémissement*, a *bruit de souffle*, but it is not continuous. The affection was, therefore, either an arterial varix or an arterioso-venous aneurism, and, in order to decide the question, some important signs existed to be taken into consideration. If it were an arterial varix, the sound would be extended everywhere throughout the whole region; it is very rare that the disease does not extend itself to all the arteries of a part. The *frémissement* would be felt, and the peculiar sound would be heard, in a case like the present, as well in the temporal arteries as in the carotids; here the sound was greatest at the superior border of the thyroid cartilage, and decreased above and below; it was very evident that the sound was produced in a very limited part. This fact, together with the absence of flexuosities in the arteries, inclined M. Nélaton to admit the existence of a communication between the artery and the vein, of an arterioso-venous aneurism. A difficulty presented itself here, for almost all the reported cases of these aneurisms assign a wound as their cause. It is very well to know, however, that they can be produced without any traumatic lesion; and, though very curious, it cannot be doubted. Mr. Turnham, of Edinburgh, has reported one case between the aorta and the ascend-

ing vena cava, and three between the aorta and the descending. M. Nélaton has himself seen a case in the crural artery and vein, where it was impossible to find a cause in the antecedents of the patient; it has also been observed in the iliac. It is difficult to explain these communications; but, in many regions, there are large veins and large arteries alongside of each other; if the artery be affected with cretaceous, or atheromatous productions on the side opposite to the vein, there will be a false consecutive aneurism; but if on the adjacent side, it is easy to see that the vein, being compressed in the inflamed walls, could be attached, and a communication between the two vessels be established. In case, moreover, a varicose condition of the veins existed, as in this instance, it would be a predisposition to this affection.

"About two weeks before coming to the hospital, this patient had had an attack that had placed her in great danger, and it was on account of it that she entered. An enormous tumefaction on the left side, by which the whole space between the jaw and the shoulder had been filled had taken place, and the general symptoms accompanying it had been very severe. When she entered, hard lumps were found here and there throughout that region; the lumps were clots of blood resulting from inflammation of the varicose veins, which had given rise to the alarming symptoms that had before existed. These varicose tumours, when inflamed, can give rise to grave and serious errors; and the following interesting case was related by M. Nélaton. Six years before, an ecclesiastic had gone to him, sent by another surgeon of Paris, to ask his opinion in regard to an enormous tumour. Immediately under the clavicle was a large mass, in the axilla was another, and it was easy to perceive that these were portions of the same tumour which had passed under the great pectoral muscle. The superficial veins of the whole region were varicose, and gave it an appearance resembling that found in encephaloid tumours. This patient had been seen by all the surgeons of Paris, and they were all of the opinion that there was an encephaloid tumour developed behind the great pectoral muscle. An operation was decided upon for its removal; the muscle was to be cut across, and the disease then extirpated. When M. Nélaton saw the patient, he doubted as to the affection being encephaloid, and moreover, granting that it were, he thought the chance of the operation proving useful to be but very small. The patient stated that, ever since his infancy, he had carried a tumour, bluish, lumpy, and disappearing upon pressure, below the clavicle; a pad properly placed under the suspender was sufficient to drive it away, and it was the only application ever made to it. In a few months this tumour had changed, so as to present the appearance it then had. Acquainted with these details, M. Nélaton supposed the case to be one of varicose tumour that had become inflamed, and advised the patient to wait. In the course of time the clots of blood were absorbed, and although a good deal of the tumour still remained, the

patient was enjoying excellent health. The same thing had taken place in the present instance, and the woman was still much annoyed by the large swelling at the side of the neck.

"In the treatment of this patient, there were three affections to be attended to. In the first place, the venous erectile tumour; it is well known that these tumours, when persons reach a certain age, remain stationary, and no longer give trouble, so that it would not be interfered with. In regard to the ranula, the usual operation would be performed. The third affection, the arterioso-venous aneurism, it was thought best not to meddle with. These aneurisms behave differently in different parts of the body, and require, accordingly, different modes of treatment; if, for instance, it be placed upon the arm, and the patient is one who is not forced to work hard, it had better be left alone; if, however, it exist upon the lower extremity, it must be operated upon. In this case, the aneurism was situated in the most favourable place possible, and it would be best not to touch it. There was here no false consecutive aneurism; for, were there one between the vessels, there would have been clots of blood, and the tumour could not have been made to disappear by pressure; here, it did so entirely. Moreover, the only operation which can be performed in such cases, is to search for the opening in the artery, and then to apply ligatures above and below; such a proceeding could not be pursued in this case. The treatment of the case was, therefore, limited to the performance of an operation for the relief of the ranula.

"When the trocar was plunged into the tumour under the tongue, nothing but venous blood issued. M. Nélaton said he had opened one of the varicose veins, before reaching the ranula. The flow of blood was quite abundant, and interfered with the operation; so that M. Nélaton was content with making as much come out as he could, and only using water as a subsequent injection. The patient did very well until the fourth day after the operation, when she had buzzing in the ears, was delirious at night, and had several liquid stools. She did not complain of the region operated upon when it was touched, and she was able to swallow without difficulty; her pulse was more frequent than natural, but there was nothing to be remarked in the respiration. On the third day from the commencement of this attack, there had been but one stool since the day before; but the condition of the woman was very alarming; her appearance had changed profoundly. On the sixth day she died. At the autopsy, pus was found under the arachnoid, but nowhere else in the body; there were no signs of purulent absorption in any part. M. Nélaton said the patient had died from an attack of meningitis. It should be mentioned that, at that time, there were many cases of cholera in the hospital. When a canula was introduced into the opening made under the tongue, and air blown into it, the whole submaxillary venous mass was blown up, and the tongue also, so that it was everywhere crepitant. The dissection of what was supposed to be an *arterioso-venous communication, direct*,

without any false consecutive aneurism, was performed with the greatest care; an injection was thrown, with gentleness and slowness, into the primitive carotid; and, at the expiration of a few moments, it flowed back from a small venous branch. This, it is true, can always be accomplished, but it requires generally more force than was employed in this instance. It was, however, impossible to find the place where the communication existed; the thyroid, the lingual, and the facial arteries were followed with the greatest care, but the search was unsuccessful. There was no aneurism of the carotid, nor was there a varicose condition of the arteries."

In reading the details of this affection a slight mistake becomes evident, probably arising from an imperfect translation by which the author confounds aneurism by anastomosis with *aneurismal varix*—affections of very dissimilar character both in their production as well as in their morbid anatomy; M. Nélaton states, that, although the disease often results from a wound, still it frequently occurs spontaneously. He has seen it in the crural vessels; Mr. Turnham, between the descending cava and aorta in one instance, and in three examples, between the ascending cava and abdominal aorta; and Dr. Mayne, between the carotid artery and internal jugular veins as the result of gunshot wound, whilst he has also recorded a peculiarly interesting case between the descending cava and the ascending aorta, in which he succeeded in forming a correct diagnosis.

We are happy to observe that the author's views as to the impropriety of operative interference in cases of venous varix correspond with the precepts that are inculcated by Irish clinical teachers, who prefer the palliative treatment of affording equable pressure and general support to the venous circulation in the affected limb. Having quoted the various remedial measures resorted to by different surgeons, he states, that, at the present time, there is but one method of treating varix, and this is, by the palliative act of compression. However, the injection of perchloride of iron may be tried, of which he speaks as follows:—

"The injection of the perchloride of iron, which M. le Docteur Pravas advised in the treatment of aneurism, has also been used in the treatment of varicose veins. This substance, thrown into the vessels, coagulates the blood contained. When used in varices, a ligature was first placed around the limb, above and below the point where the puncture was to be made, care being had that the patient previously walked about, so as to render the tumours more projecting; the ligature being placed, the syringe is filled with the perchloride of iron, and, that no air may be left in the interior, the piston is turned until a drop shows itself at the extremity of the

instrument. When this is done, a trocar with its canula is introduced, obliquely and with slowness, into the vein, the instrument being manœuvered as if it were an awl. The trocar being withdrawn, the beak of the syringe is at once fastened to the canula by means of screwing, and the piston is made to descend by turning the piston as many times as you wish to throw drops of the perchloride into the tumour.

"After the injection, the violet colour of the skin is changed to a reddish, the cellular tissue is firmer, and in it can be easily distinguished, by its greater consistence, the subjacent clot. The first consecutive phenomenon is a slight inflammation of the skin, which declares itself generally about ten hours after the operation, and which can terminate by resolution, by induration, or go on to suppuration. The inflammation can also terminate by mortification, and without causing any serious symptoms.

"The operation succeeds perfectly, so far as the obliteration of the vein, at a particular point, is concerned; and the general symptoms following it are of no consequence.

"The *perchloride* or the *tritochloride of iron* should be prepared as follows, when used in these operations:—Dissolve with heat, in a matrass, the hydrate of the oxide of iron in hydrochloric acid, the iron being in excess; filter the liquid and pour into a porcelain capsule; evaporate a great part at a slow fire; finish the evaporation of the concentrated liquid in a water bath, on an alembic that conveys to a distance the vapour of the water, which should not circulate about the capsule; evaporate until no more vapour arises from the liquid, and a drop coagulates on a plate in cooling. The salt thus obtained is dissolved in distilled water, so that Baumé's areometer will stand at 15°; thirty drops of which solution are sufficient to coagulate energetically eight or ten cubic centimetres of blood. At 30° the solution coagulates less quickly, and causes inflammatory accidents; below 15° it would be too feeble. The salt must be preserved in solution, for when dry it changes very easily."

In the section on cancer nothing is added to our former knowledge on that disease connected with its diagnosis or pathology. There are, however, a few truisms, if we may use the expression, which might really have been omitted without causing any decided injury to modern surgery. Such is the expression of his opinion, that cancer is a constitutional affection liable to return when removed by operation, and also, that many tumours are conceived to be of a malignant character, although perfectly benign. Still, the reader will find much accurate information on this subject if he carefully peruses the section on cancer.

The following case being specially interesting, and in some degree novel, we extract at length, carefully abstaining from comment on the Professor's views :—

"March, 1854. A young girl, seventeen years of age, a mantua-maker, with an affection of three years' standing, upon the palmar face of the middle finger of the right hand. She said that, at that time, the finger had become larger, and red, and hot; and that was all the information she could give about it.

"When the finger was examined, it was found that the affection was entirely confined to the palmar face of the finger; upon the back there was nothing, and also upon the greater portion of the sides. The first phalanx was intact; its form and volume were normal; there was no alteration appreciable to the touch; the same was true of the third; but the second was a little augmented in size. M. Nélaton said that, every day, the surgeon is led into error by appearances of swelling in bones; and in this case, although the bone seemed, to the touch, to be double the size of that of the other hand, it was in reality but very slightly larger. On the palmar face of this phalanx was a swelling, perfectly circumscribed and cylindrical, resembling another finger superadded. In a line with the middle finger, in the palm of the hand, just four-fifths of an inch from the digito-palmar commissure, were two indurations, two small nodosities.

"One thing about the swelling on the medius was striking; namely, its limitation to the palmar face of the finger; we have, in that part, the bursæ mucosæ of the flexor tendons, having precisely the same anatomical limits. This most probably had been the order of the phenomena: there had been first an affection of the bone, the second phalanx, in the neighbourhood of the sheath of the flexors; perhaps a caries, perhaps a tubercle, was developed there; at all events, there had been inflammatory action; the sheath in contact with it had become inflamed, tumefied; fungosities had formed, and the conditions then existing had been the result; fungous alteration of the synovial membrane, and of the cellular tissue around it.

"What were the nodosities found in the palm of the hand? There is a strange affection of the hand, to which M. Nélaton has had occasion to pay particular attention. It acts in this way: the patient seizes an object by closing his hand, and afterwards finds himself unable to open it; and yet, all the articulations are perfectly healthy. In order to open it, he makes use of his other hand, and then it opens with a spring, as if a catch had been loosened; or else he makes use of another finger of the same hand, placing it under the one which is *caught*, and pressing it open. There is a resistance; as soon as it is overcome, the finger opens without difficulty. Seeking to account for this affection, M. Nélaton found it always to be accompanied with the presence of the nodosities seen in this case; they are like small grains playing in the sheath of the tendons, when the fingers are opened and closed. As the finger moves, the nodosity suddenly disappears, and the disappearance of the nodosity is simultaneous with the giving way of the catch, checking the movement of the finger. What are these nodosities, and what are the obstacles by which their movements are arrested? The knowledge of the normal anatomy of the parts enables us to answer.

"Just below the place where the palmar aponeurosis divides into four appendices for the four fingers, it is strengthened, and the spaces left between its divisions filled up by transverse fibres, going from one side of the hand to the other, and particularly strong at the first, the middle, and the ring-fingers. This band corresponds exactly to the glenoid ligament of the metacarpo-phalangian articulations, and to a transverse line passing along the transverse portion of the first fold, in the palm of the hand, above the one between it and the fingers. The inferior edge of this bandlette never reaches as far as the fibrous sheath of the fingers; there is always an interval of four or five lines between the two, in which the synovial membrane is only separated by loose cellular tissue, from the superficial fibres of the palmar aponeurosis, which pass in front of it to terminate at the deep surface of the skin situated over the digito-palmar fold, and on the sides of the first phalanx. It is exactly when the nodosity is at this interval that the movement of the finger is arrested; and when it has suddenly disappeared, by slipping under the fibrous bands, the finger moves as usual; the check is removed.

"These nodosities might be supposed to be situated in the tendon itself; for, in certain places, the tendons do present a marked thickening, or even a sesamoid bone is found in their interior. But this thickening of the tendons is never observed but in certain places, and they are in parts where the tendons are exposed to rubbings, or to considerable pressure. Now, this was not the case in this patient, nor in others that M. Nélaton had met with; the skin of the hand was tender, supple, and free from every kind of callosity. As to the thickening of the tendon by the propagation of the inflammation existing lower down on the finger, that was not to be supposed; for, every day, tendons and ligaments are seen in the midst of inflamed tissues without their tumefaction being observed. It should rather be believed that, in consequence of the inflammation, there had been a production of false membranes, and these had become applied on the surface of the tendon, and thus formed nodosities.

"For the treatment of this affection, this check in opening and shutting the finger, admitting what is said above to be true, nothing is more easy than simply to enlarge the fibrous ring, by a subcutaneous incision, and thus allow the nodosities to slip easily up and down. This treatment M. Nélaton had never practised, for the cases he had already seen had all been unwilling to submit to it: in them, small blisters had been frequently applied, but with no beneficial result. M. Nélaton said no more about this curious affection, referring those who wished to know more about it to a memoir on the subject, in the *Archives de Médecine*, for 1851.

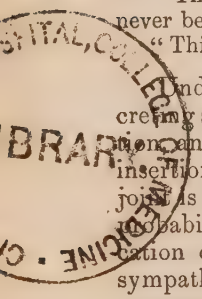
"In this case there was such disease in the second phalanx of the finger, that it would be necessary to disarticulate it; and it would be proper not to be satisfied with that, but to prolong the incision upon the flexor tendon and excise it beyond the nodosity. A line drawn from the commissure of the thumb, transversely across

the hand, marks the limit of the superficial palmar arterial arcade, so that there need be no fear about involving it in the incision.

"The examination of this phalanx, after its removal, was strikingly confirmatory of what M. Nélaton had said about the facility with which the surgeon is led into error by the appearance of swelling in bones; although the phalanges are as easy to explore as any other bones, yet this second phalanx, that had seemed so much increased in size, was found to be scarcely larger than the one in the other hand. At the end where it was enlarged, there was a slight denudation, very near the articulation with the first phalanx; the distal extremity was perfectly healthy. When the sheath of the flexor tendons, in front of this phalanx, was opened, it was found to be filled by a tissue of an encephaloid appearance. In giving it this name, M. Nélaton said, he did not wish to imply that the affection was cancerous, for he did not, in the least, think that the lesion was one capable of reacting on the economy and of producing cachexia; the affection, he said, was a vast articular fungosity.

"This affection of the tendinous sheaths, M. Nélaton said, had never been described.

"This patient recovered, without accident, from the amputation."



Under the section "Diseased *Bursæ*," affections of these secreting sacs are described in the usual situations. But, in addition, an obscure inflammation of the bursa connected with the insertion of the sartorius tendon at the inner side of the knee-joint is detailed, well worthy of clinical observation, from the probability of its being confounded with a more serious implication of the articulation, a mistake more liable to ensue, as sympathetic effusion into the cavity of the joint generally accompanies it. We conceive that it will be sufficient merely to direct attention to the circumstance, in order that so grave an error may be avoided. Prior to leaving this subject, we would desire, even subject to the charge of being considered captious, to correct an error into which the author has been betrayed, probably through inadvertence. In describing enlargement of the bursa at the inferior angle of the scapula, he states that it lies between the *serratus magnus and the bone*, while, from the description of the tumour, its evident locality must have been beneath the latissimus dorsi muscle, and on the inferior angle of the scapula. We have frequently seen chronic enlargement of this synovial sac, but have not observed a case which had advanced to suppuration.

In the section treating of Fractures, M. Nélaton seems to be rational and practical, and we propose drawing attention to some of his views; but as we are necessarily constrained to be brief, style must be sacrificed to terseness of diction. In fracture of the clavicle he prefers Mayor's handkerchief to any

other apparatus, dispensing with the use of Desault's pad, as he believes that where deformity exists it is impossible to remove it by any treatment; and the only indication answered by the apparatus appears to consist in keeping the fragments motionless. This assertion certainly admits of exceptions, although in the generality of cases we acknowledge the rule. A case of fracture of the inferior extremity of the humerus presents some curious specialties, sufficient to excuse its quotation:—

"June, 1852. The glazier, whose case is spoken of elsewhere as having received a fracture of the cranium, by falling from a third storey window, had also a fracture of the humerus, situated immediately above the elbow.

"The deformity of the arm, in this case, presented something peculiar, something extraordinary. Generally, the articular fragment is drawn backward and upward by the contraction of the triceps muscle, which is inserted into the olecranon; the olecranon forms a very great projection at the posterior part of the elbow, and in front is found a hard, rough projection, formed by the superior fragment, raised up by the brachialis anticus and biceps muscles. Here, on the contrary, the inferior fragment was drawn forward. This was attributed, by M. Nélaton, to the fracture having been from before, downward and backward, and that the inferior fragment had slipped upward and forward.

"It was necessary to know if there was not an interarticular fracture. But, in those cases, there is always an effusion of blood into the articulation, and here there was no sign indicating a communication with the joint. There was, upon the posterior part of the arm, a small wound in the integuments, and there was some doubt as to whether it did not communicate with the seat of fracture. The day after the man was brought in, twenty-five leeches were applied to the elbow.

"In the treatment of fracture of the inferior extremity of the humerus, various apparatuses are employed by surgeons. There are some who always place the limb in an extended position. But, a fracture here can lead to anchylosis of the elbow-joint, and most surgeons prefer a slight deformity to the serious inconveniences resulting from an arm anchylosed in an extended position. M. Nélaton placed the limb in a demi-flexed position, a compress was applied over the projection behind, and a splint, the length of the humerus, was then placed over this compress, and held in position by a circular bandage. Two days afterwards, the fragments being in their proper position, an immovable apparatus, composed of starched bandages, compresses, and an anterior and posterior pasteboard splint, was applied. It was removed the third week, so as to give slight movements of flexion and extension to the limb. This man, notwithstanding the serious nature of his injuries, recovered from them, and left the hospital with a very good arm. The elbow-

joint was still stiff, but M. Nélaton thought that, in a few months, the freedom of motion would return."

In fractures of the radius, M. Nélaton prefers placing the hand in a state of *pronation*, and speaks in eulogistic terms of a cork interosseous pad, to separate the fractured extremities of this bone from the ulna. From some experiments which we have made on the dead body, for the purpose of determining the possibility of keeping the bones apart by interosseous wedges, the conclusion is forced upon us, *that position is the only true means for preserving the integrity of the interosseous space*, and *that pads, however carefully adjusted, are incapable of exerting the influence constantly attributed to such an apparatus.*

In that form of fracture occurring in the carpal extremity of the radius, described by Colles, Smith, and Dupuytren, the obliteration of the interosseous space is a pure fabrication, neither consistent with the anatomy of the parts, nor the pathology of the fracture. But, let it be remembered, that when we make this statement, reference is only made to the fracture occurring in the immediate vicinity of the joint, and not to accidents at a higher point of the radius.

M. Nélaton states that he has often used the apparatus of Malgaigne in fractures of the patella, and never observed those inconveniences to result from the practice usually described by authors, where the tendons are punctured. He uses the starch bandage with position, in these cases, and conceives that he thus very frequently effects osseous union. Of this we entertain serious doubts, notwithstanding the assumed consolidation of the specimen preserved in Dupuytren's museum, and are disposed to agree with Sir Astley Cooper in the opinion, deduced from long experience, that such fractures always unite by ligament. At the end of thirty-five days, M. Nélaton commences passive motion, on the supposition that further constraint would produce a permanently stiff joint, a circumstance which need not in the least alarm the surgeon, as we have maintained a state of permanent extension for thirteen weeks, without any unpleasant consequences ensuing to the patient, with respect to the subsequent facility of using the joint.

In omitting an examination of the sections treating of diseases of the breast, eye, nose, and injuries of the head, it must not be understood that we consider them unworthy of attention on the part of either student or surgeon; but, although essentially practical, and therefore valuable, we cannot say that their matter ranges beyond that of the usual treatises on these subjects. The same remark applies to the removal of the superior

maxillary bone, with the exception of a single observation, which seems rather useful:—

"M. Nélaton said that he had removed the upper maxillary about fifteen days before, and something quite curious had occurred, that might be rendered useful. The operation was completed without opening the nasal fossa; the membrane of Schneider remained intact; it was separated, and its exterior surface, thus laid bare, had become inflamed and much thickened."

There is no anatomical impossibility existing to the removal of the upper, outer, and inferior walls of the antrum, and even leaving the bony paries of the nose quite intact. This proceeding would, of course, much complicate the excision, but it would be productive of so much advantage to the patient, if successfully performed, that we have no hesitation in stating, its difficulty ought not to deter the surgeon from attempting its accomplishment.

Persons subject to habitual constipation, pregnant females, and the inhabitants of tropical climates, are prone to develop ulcerated fissures in the normal rugæ at the verge of the anus, creating intolerable agony both at and after stool. As a substitute for cauterization, or the partial division of the sphincter, practised by Boyer, the author prefers "instantaneous dilatation of that muscle, the patient being placed under the influence of chloroform. The surgeon inserts his two thumbs into the anus, with their dorsal surfaces opposed to each other, and, grasping the buttocks with the fingers, dilates until the thumbs are arrested by the tubera ischii,"—the object being to lacerate the anal fibres of the muscle, and, probably, paralyze its external portion. When Recamier first proposed the operation, the painful nature of its performance rendered the surgeon averse to avail himself of the plan followed by many Continental surgeons. But, the use of anæsthetic agents has now removed the only objection to the practice.

In prolapsus ani, M. Nélaton uses the actual cautery, and states that Dupuytren's operation, although apparently followed by a permanent cure, merely creates a temporary benefit, as in all his cases the disease returned in a short time. We would wish to have been informed of the author's experience in relation to the operations of Hey, Copland, and the plan recommended by M'Cormick, of Dublin; as, in the absence of any remarks on the subject, we are led to assume that they had been tried, and found unsuccessful in the treatment of this most distressing malady.

Cancer of the tongue justly occupies a conspicuous place in

the Treatise; it will be unnecessary to allude to its symptoms, progress, and final results, as these are well known to every practical surgeon; but we would direct especial notice to M. Nélaton's opinion, that, inasmuch as every cancer of the tongue is invariably fatal one year after the commencement of ulceration, he believes the surgeon is not only justified, but constrained, in the performance of an operation for its removal, in order to prolong the patient's life,—quoting a case where two years elapsed prior to its return. In cases presenting a volume inconsistent with the perfect application of a ligature, he does not hesitate to excise the organ by division of the symphysis of the jaw, and the separation of the tongue close to the os hyoides. He draws attention to the practical point that the two ranine arteries lie close to each other, and that much difficulty is experienced on that account in applying a ligature successfully; and he recommends, where hemorrhage supervenes after the wound is dressed, and that, on opening the cavity, the bleeding vessel cannot be tied, to apply lint dipped in perchloride of iron, which he states has the action of a veritable cautery, and not a mere styptic. In all operations on the tongue, or lower jaw, "two things are to be dreaded" in the subsequent progress of the cases: the first being œdema glottidis, especially when the parts have been roughly handled; the second, purulent infection of the system, to which the patients in the Parisian hospitals seem particularly liable.

Without premeditation, we have selected portions of this truly practical work for examination and analysis, and, from the tenour of our remarks, the estimation in which we hold the opinions of M. Nélaton will appear to be far above that of ordinary surgeons, who essay to represent clinical teaching, assuming the power to direct by the force of accidental authority, rather than by the power of practical superiority; and we trust that, in pointing out a few imperfections in the work, these remarks will be received by Mr. Atlee in the spirit which dictated their expression, rather than as the evidence of censure or caprice towards the editor for having generously planned and fairly executed a task, more for the advantage of others than one ministering to his own particular benefit.

Lectures on the Diseases of Women. By Charles West, M.D. Part I.—*Diseases of the Uterus.* London: Churchill. 1856. 8vo, pp. 413.

If asked, what constituted the distinguishing medical feature of our own times, we would, without hesitation, say—the fierce controversies that have been carried on respecting uterine pathology and therapeutics. Opinions the most extreme, views the most opposite, have been propounded and advocated with ingenuity and ability, though too often with unbecoming warmth. The disputants may, in a general way, be divided into two groups: one is apparently actuated by an inordinate love of what is novel, and seems to think that innovation must needs be improvement. This constitutes the more numerous class. The other, and smaller group, is characterized by a profound reverence for long-established doctrines, and an utter aversion to innovation of every kind. These practitioners are, no doubt, conservative in their tendencies; but their obstinate scepticism is a great impediment in the way of progress. Now, between these two classes, a third, and intermediate one, has sprung up: distinguished by a greater eclecticism, and, we would add, more common sense, than either of the other conflicting parties, that have so long retained possession of the obstetric field. This new school endeavours to avoid the capital mistakes of its predecessors: to be slow in giving up what experience has confirmed, and cautious in adopting new remedies or expedients, but all the while open to conviction from any quarter. Foremost amongst the few men of this class stands Dr. West. Sound judgment and good sense pervade every chapter of his book. Though intimately conversant with all the novelties of the day,—and their name is Legion,—he seems to have formed a very just and impartial appreciation of their respective merits; and to have grounded his opinions on personal observation and sober reflection. To do this faithfully requires a well-balanced mind. It is no easy thing to divest ourselves of the influence of prejudice, habit, early training, and respect for authority, and withdrawing from out the distorting medium of cliqueism and party, *to try fairly*, *observe accurately*, and *reason candidly*. This, we believe, is what Dr. West has endeavoured to do, respecting the various disputed points of pathology and practice; and though he may not have altogether and entirely succeeded, still, the standard he aimed at was the true one; and his work is little, if at all, short of it.

In the "Advertisement" Dr. West tells us, that "that these Lectures are a first instalment towards the discharge of that debt

which the opportunities of an hospital and the responsibilities of a teacher imposed upon him." The volume consists of twenty Lectures, which treat of nearly every disease, functional and organic, of the unimpregnated womb. A second volume, upon all the remaining diseases of the female system, we are to expect in about three years hence.

Lectures I. and II. are of an introductory kind, and describe the general symptoms of diseases of the female sexual system; the modes of investigating these symptoms; and the different means of subjecting the uterus to physical examination. He offers very judicious remarks upon the uterine sound, and the uterine speculum. Of this latter he rightly says:—

"I think that the endeavour of all of us should be to ascertain the minimum of frequency with which its employment is necessary. This is to be done, not by decrying the instrument, still less by attributing dishonest motives to those who use it, but by soberly and honestly trying to test the value of the information which we derive from it, and learning to discriminate between those appearances which the speculum discloses that are of moment, and such as are of no importance."

The next three chapters are upon "Menstruation and its disorders." These functional diseases of the uterus are treated of in a systematic way; but yet the author does not confine himself too rigidly to nosological distinctions; and we like him all the better for so doing. We rarely find in nature those marked lines of demarcation and separation which some writers would have us to expect; and it is, therefore, obviously unwise to insist too much upon them in books.

Of *menorrhagia* he recognises two forms, according as the disease depends on some cause seated in the constitution generally, or on some affection of the sexual system. For practical purposes this is perhaps the best classification that could be proposed; but, in very many instances, it is a matter of no small difficulty to pronounce whether the profuse discharge of blood at the menstrual period is, in itself, a primary or secondary occurrence: that is, whether it is the sole disease, or only a symptom. The cause for this obscurity is to be found in the fact that, in nearly all the diseases of the womb attended with immoderate discharge of blood, the hemorrhage first shows itself at the menstrual period, thereby simulating menorrhagia. The anatomical peculiarities of the uterine system of vessels account, in great measure, for the frequency of hemorrhage as a symptom of various functional and organic diseases of the

uterus. Dr. West's experience of the infusion of digitalis, as an astringent, in menorrhagia, is not favourable to its efficacy; but he has not employed it in many instances. Gallic acid and matico he places most confidence in; whilst the acetate of lead he esteems very lightly. Injection of the uterine cavity, though a powerful means of repressing hemorrhage, has yet, in several instances, seemed to be a proceeding of much hazard; and Dr. West, therefore, wisely cautions us respecting it. He conceives its use should be limited to cases—and these are very unfrequent—in which the hemorrhage only receives a temporary check from the use of the plug, and bursts out afresh as soon as this is withdrawn. He narrates one example of its successful employment. Three fluid drachms of a solution of twenty grains of gallic acid in an ounce of distilled water formed the injection, and it was conveyed into the uterus by means of a small glass syringe, fitted to an elastic catheter.

Much attention has of late been directed to a form of dysmenorrhœa, supposed to depend on narrowness of the os and cervix uteri, and the consequent mechanical impediment to the escape of the menstrual fluid. This mechanical form of dysmenorrhœa, Dr. West believes, is very unusual, which opinion is rather inconsistent with the variety of instruments which are now to be had for dilating or cutting the supposed stricture of the cervix. Nevertheless, we believe Dr. West is right, and that hysterotomes and galvanic bougies, and such other unskilful contrivances, will, by and by, give place to treatment based on a sounder pathology. But we must let the author speak for himself on this subject:—

"Besides the gradual dilatation of the os and cervix uteri by bougies, instruments not unlike the *speculum matricis* of the ancients have been devised for forcibly widening it—literally screwing it open; and others for increasing it by means of a *bistoire cache*. I am perfectly at a loss as to the principle upon which these instruments are recommended. If the cervix uteri be wide enough to admit them, I do not see how its narrowness can offer a mechanical impediment to the escape of the menses. I can, however, readily understand that the uterus may suffer severely from the violence offered to it, and, indeed, have known pelvic abscesses succeed to some of those manipulations.

"These proceedings are, I believe, much less frequently resorted to now, since the mischief to which they are likely to lead has become more evident than they were some years ago. I cannot, however, refrain, now that the opportunity presents itself, from warning you against plausible errors, such as led to this practice—errors into which you are all the more likely to fall from their being of a kind to receive speedy currency among our patients. Non-profes-

sional persons cannot understand the reasons which induce us to adopt one course of medical treatment instead of another; but they can quite understand the popularized pathology which tells them that they menstruate with pain because the passage of the womb is too narrow, and in the hope of a cure will submit with readiness to almost any amount of mechanical treatment; and will, perhaps, draw comparisons between the doctor who is resorting to very needless interference, and the less officious person who did no more than the necessities of the case required—comparisons, I need scarcely say, very unfavourable to the latter."

The author does not deny the existence of a mechanical form of dysmenorrhœa; but he considers it to be a disease of great rarity, and he recommends a more rational plan of treatment than that so confidently extolled by some modern physicians.

The views put forward in these Lectures respecting ulceration of the os uteri, and chronic inflammation of the cervix, are essentially the same as those already published by Dr. West in his Croonian Lectures, a very full notice of which appeared in a former Number of this Journal. We gladly, therefore, excuse ourselves from entering upon the consideration of these much disputed subjects on the present occasion. We cannot forbear, however, from remarking that he has treated them with clearness and consistency, and studiously avoided all controversial discussions.

Lectures IX. X. XI. XII. and XIII. are taken up with the various misplacements of the uterus. Retroversion and retroflexion of the uterus very properly come in for a large share of consideration, and the author's remarks upon them evince that caution and good sense which so much characterize his writings. It is very notorious that an exalted degree of importance has of late been attached to these particular misplacements of the womb, and that a mode of treatment purely mechanical has been strongly insisted on. It is right to say, however, that by many practitioners this great frequency of the misplacement has been considered erroneous, and that, even when present, it furnishes little indication of treatment. The following observations of Dr. West, upon the use of the "uterine supporter" (for the supposed rectification of the womb), afford a very good insight of his views respecting the pathological importance of this misplacement:—

"On these accounts, though I have tried the uterine supporter in a few cases, I have now, for some time, quite given up its employment, and content myself with a mode of treatment which, though it seems to promise less, yet almost always affords great

relief, which, in a large number of instances, quite removes the patient's sufferings, and is not unfrequently followed by the complete rectification of the position of the womb. The principle, indeed, upon which I act in the management of these cases amounts pretty much to this—that, to the best of my power, I take care of the general symptoms, and leave the misplacement to take care of itself.'

Connected with the subject of *inversion* of the uterus are two controverted questions of much importance, on which the opinion of our author may be quoted. One of these is the *spontaneous inversion* of the uterus, and the other is its *spontaneous reposition.* He admits that the womb may invert itself, and that the accident has been brought about, "not by simple want of contractility of the organ, but by the irregular and unequal contraction of its different parts; a state of comparative relaxation of the os and cervix coexisting with violent action of its fundus." He admits, however, that the extreme rarity of this accident in lying-in hospitals, where the second stage of labour, it is to be presumed, is wisely conducted, offers a difficulty to our receiving the above as the ordinary explanation of the occurrence of inversion of the womb. Assuming the possibility of spontaneous inversion, we are not quite satisfied with his "explanation." In drawing a comparison between the mode of its occurence, and that of intussusception of the intestine, we think that Dr. Tyler Smith may have put us on the track to clear up this matter, and, at all events, he seems to have pointed out a very close analogy. We confess ourselves slow to believe in this spontaneous inversion of the womb; or, at least, that it bears about the same proportion to all cases of this accident, that inversion itself bears to all cases of delivery! An incident once fell under our notice, bearing strongly on this very point. We attended a woman on her death-bed, who had been some years previously the subject of supposed spontaneous inversion of the womb, after labour, and the history of whose case had even been published, being regarded as an unquestionable instance on the affirmative side of this question. Her assurance to us was, that after the birth of the child, the nursetender had subjected her to a great deal of manipulation with the endeavour to get away the placenta, and that, when "pulling at her," the accident suddenly occurred which placed her life in danger. This was the woman's voluntary confession at a time when there was no possible object in her misrepresenting, and when she was not likely to do so, being in the immediate prospect of death. We acknowledge that to our minds her story carried truth.

More strange still, perhaps, are those cases in which the womb is alleged to have spontaneously replaced itself. The instances on record are very few, and with cases of such a very exceptional character, we do well to demand very unimpeachable evidence. After citing some of these marvellous examples, Dr. West says—"It is difficult to know what opinion to form concerning these cases; in some the accuracy of the diagnosis appears very doubtful, and in others the details given are far too meagre to warrant any conclusion with reference to their real nature."

After misplacements of the womb, the subject next brought under our consideration is "uterine tumours and outgrowths." Beginning with the most simple, viz., mucous polypi,—he proceeds up to the more complex kinds of tumours, examining in succession each kind. By this method, polypi are not made to form a separate or detached subject, but come under notice according to their pathological position in the series. Looking solely to practice, the distinction of uterine tumours into *pediculated* and *non-pediculated* is a useful one: but it has no foundation in pathology, and is, therefore, a very unscientific distinction. We always thought the mere accident of a tumour having a neck or no neck was not a sufficient ground for classification, and we are, therefore, glad to see Dr. West discarding it altogether. Four chapters are occupied in examining the pathology, symptoms, and treatment of the various uterine tumours and outgrowths, exclusively of malignant diseases. They are among the best chapters of the book, and exhibit not alone the results of extensive reading, but of large experience and matured reflection. A very debated question connected with polypi is, the cause of the hemorrhage which constitutes their most constant and most prominent symptom. Dr. West agrees with other eminent pathologists, in thinking that it is from the womb itself, and not from the outgrowth, that the principal bleeding flows; and that the hemorrhage is proportionate, less to the size of the polypus than to the intimacy of the relation between it and the womb; being much more considerable if the growth is inclosed within the lips of the os uteri, than if it projects beyond them, and hangs down into the vagina. As confirmatory of this statement, we may mention the circumstances of two patients at present under observation. In one of these women, a polypus as large as an orange is protruded beyond the os uteri, and fills the vagina: this patient has had scarcely any hemorrhage for months. The other woman has a small polypus, about the size of the ungual phalanx of the index finger, just beginning to project from

the os uteri, and she is perfectly blanched from frequent and profuse hemorrhages. Still, we feel bound to say, that Dr. West's explanation does not satisfy us respecting the cause of the hemorrhage so constantly attendant upon pediculated tumours. It is very well to argue that the presence of the tumour is a source of irritation, as Dr. West says; or to maintain, with some recent authorities, that "developmental attraction" determines an inordinate quantity of blood to the uterus, as a consequence of which blood is poured out to a greater or less extent. But on this reasoning we should expect hemorrhage to occur with equal, if not greater, frequency in cases where the tumour is still imbedded in the uterine substance, in other words, with non-pediculated tumours. The concurrent testimony of all observers, however, shows that there is a very great difference in the frequency of this symptom in the two classes of cases, so that we are still in ignorance of the true solution of this question.

The transformation, and the spontaneous cure, of fibrous tumours of the uterus, are points of much interest, and stand in some connexion to one another. Dr. West gives a brief enumeration (besides a lengthened exposition) of the various modes by which a natural case of this growth is sometimes effected; and these we shall here transcribe:—

"There are very few ailments in the course of which nature does not make some efforts, often, indeed, imperfect and unsuccessful efforts, at cure. In the case of fibrous tumours, there are five different modes in which this attempt is made. Either the pedicle undergoes a process of gradual attenuation, and then gives way, the tumour thus becoming detached from the uterus; or, more rarely, a portion of its investment becomes ulcerated, or dies, and the growth gradually shells out from the sheath of cellular membrane which contained it; or a change takes place in its substance, the exact nature of which is not quite understood,—it becomes disintegrated, dies, and is got rid of piecemeal; or a different change occurs, similar to what we see in other morbid products—the tumour undergoes the cretaceous transformation, and, though not eliminated from the womb, it ceases to stand in any vital relation to it, and the symptoms which it once produced diminish, or altogether disappear."

Of the various modes of extirpating fibrous polypi of the uterus, Dr. West gives the preference to excision. He states, that he has removed eight polypi of this description by excising them, and that in no single instance was the operation followed by hemorrhage, or any other untoward symptom. The dread of immoderate bleeding, which seems to haunt the

minds of practitioners, and deter them from this operation, rests on no solid foundation. In this matter, the vast accumulated experience of Dupuytren, Velpeau, Lisfranc (*quantum valeat*), Simpson, and West, have placed the superiority of this mode of extirpation, beyond all dispute, over every other. When performed according to Dr. West's directions, the operation is really one free from all difficulty. The patient is placed on her back, and the knees firmly held apart; a pair of Museux hooks are now carefully fixed in the pedicle of the tumour, which is then to be slowly drawn down to the vulva, or beyond the external parts, when the stalk may be divided by a pair of stout scissors curved on the flat.

The next great division of his subject on which Dr. West enters, is *malignant diseases of the uterus*, and the three chapters devoted to their consideration conclude the present volume.

In these chapters we find a very full description of the pathology and symptoms of the different forms of malignant disease that attack the uterus. The influence of cancer uteri upon parturition is also dwelt upon, and illustrated by the statistical results of a large number of cases. By far the most common form of cancer met with in the womb is the fungoid or medullary carcinoma; next in frequency Dr. West places the epithelial varieties of the disease (though he doubts the propriety of regarding these as examples of genuine cancer); after these may be classed scirrhus, or hard cancer; while, almost as rare, or perhaps even more uncommon, stands the colloid, or alveolar variety of the disease. Contrary to the generally received opinion upon this subject, Dr. West considers the true scirrhus, or hard cancer, to be a very rare form of uterine cancer; and in this opinion he is supported by the late Professor Kiwisch, and by Rokitansky. He further tells us, that of *one hundred and twenty* cases of uterine cancer of which he has a record, the disease appeared, from examination during the patient's life, to be of the medullary kind in *one hundred and eight;* epithelial, in *ten;* and colloid, in *two;* while in *not a single instance* did he recognise the characters of a scirrhus, though he has seen some cases of alleged scirrhus, in which the history of the patient, and the result of long-continued observation, plainly showed the name to be misapplied, and the enlargement and induration to be of an innocent kind. The common observation, that cancer first makes its appearance in the neck of the uterus, is amply verified by the same statistics; for in only *two,* out of *one hundred and twenty* cases of uterine cancer, the disease occupied the *body* of the organ, and ran its course to a fatal issue without the occurrence of ulceration of the os uteri,

or any change in its condition, such as during life led to the suspicion of its being the seat of malignant disease, though its tissue was found, after death, infiltrated with cancerous deposits.

As medicine is powerless to effect a cure in this melancholy class of cases, we must look to other means to rescue the patient from the fatal malady under which she labours. This can only be accomplished by the destruction, or the extirpation of the disease; in other words, by the use of caustics, ligature, or knife. Escharotics may be serviceable, the author thinks, as palliatives, but the great risk attending their use in a concentrated form, to surrounding structures, almost prohibits their employment. The *actual cautery* is more manageable, and on this account preferable; and although he has not himself used it, or seen it used sufficiently often to have formed a very decided opinion with reference to the amount of benefit which may be anticipated from it; yet, he is satisfied that there is no danger to be apprehended in its employment, and that it does not tend to make matters worse. The danger of injuring adjacent parts by the radiation of the heat can always be effectually guarded against by the use of a boxwood speculum. Excision of the cervix is an operation that has had some able advocates, and has been performed times without number. The success attending it, however, has not, we believe, been at all satisfactory; so little so, that many cautious and sensible men have altogether abstained from performing it. We shall now quote some of Dr. West's remarks upon this subject, as they are very judicious and pertinent:—

"Such were the two opposite errors by which this operation was brought into discredit; by the one it was performed when needless; by the other, when useless. I have, however, described a variety of malignant disease to which it is applicable, and in which its performance has been found most salutary. Cases have long been on record, in which the complete removal of cauliflower excrescence of the uterus has been followed by the patient's complete recovery, and you know that there are other forms of disease of more solid texture, and endowed with smaller vascularity, which present the same character of beginning on the surface of the os uteri, and only by degrees extending to deeper tissues. Now, precisely these epithelial cancers are they which have been cured by the removal of the affected part, and to such cases I believe the operation ought to be almost exclusively limited. It is to be feared, however, that the conditions which, even in this form of the disease, warrant the performance of the operation, are comparatively seldom to be met with; for though, for the past two years, I have been constantly

looking out for cases suitable for it, but one instance has come under my observation in which my surgical colleagues have considered it justifiable, and not above two or three more, in which, in my opinion, it might have been attempted."

The successful case alluded to was operated on by Mr. Arnott in the Middlesex Hospital, and was twice nearly lost from hemorrhage; the first time being immediately after the operation, when the actual cautery had to be resorted to; and the second time was on the separation of the slough, when the vagina had to be plugged. These dangers surmounted, the patient made an excellent recovery, and continued for six months in the enjoyment of good health, but at the end of this period symptoms of her disease reappeared, and under it she sank in two months. We should gladly have dwelt at greater length on this and some other practical questions of primary importance, so fully and so ably discussed by Dr. West throughout these Lectures. But we must draw this review to a conclusion.

From the study of this volume we have truly derived unmixed satisfaction. All the subjects of which it treats are very fully and fairly examined; and the author very judiciously combines the results of his experience and research,—not needlessly introducing the opinions of others, or wearying the reader by an enumeration of diversified modes of practice. His descriptions of disease are generally most faithful and well expressed; whilst the numerous apposite cases which are here and there introduced serve most materially to illustrate and impress his remarks. Upon all disputed points he gives his opinion with candour and courtesy. From the marked impartiality with which the author investigates conflicting doctrines and statements, we feel pursuaded he is no partisan. Indeed, with admirable tact and good judgment he has managed to keep clear of all controversies; and he has apparently done this without any compromise of his own opinions, or any offence to those from whom he may happen to differ. Without possessing any marked feature of originality, we still think this treatise will be favourably received by the profession. Dr. West has an agreeable way of handling his subject, although his style is not by any means free from defects. He is systematic, and observes classification just so far as this may tend to the elucidation of his subject, but no further. A laboured attempt at precision and methodical arrangement, by reducing our remarks to certain heads and divisions, too often has the effect of embarrassing the writer, of wearying the

reader, and confusing the subject. The succeeding volume of this work we shall await with expectation, and trust that nothing may occur to prevent the author from giving it to us within the time he has specified.

Report of the recent Yellow Fever Epidemic of British Guiana. By DANIEL BLAIR, M. D., Surgeon-General of British Guiana. London: Churchill. 1856. 8vo, pp. 91.

THE work before us is from the pen of one who has had full opportunities of studying that of which he treats—Dr. Blair having been resident in the colony of British Guiana since the year 1835, and having during this time, in addition to the opportunities of observation afforded by private practice, had the Colonial General Hospital and the Demerara Seaman's Hospital under his immediate charge. That the sources from whence his conclusions have been drawn were sufficiently ample, we may infer from a statement in the former work of our author, where he informs us that, prior to its issue (in 1849)—

"He had treated, from the 1st of February, 1842, to the 30th of June, 1848, in the Colonial Hospital, 11,420 cases of idiopathic fever; and in the Seaman's Hospital, during the same period, 1439 cases of the same nature."

By the word "idiopathic," Dr. Blair means to express fevers originating without any cause that could lead them to be regarded as of the sympathetic kind, such as arise from the phlegmasia and exanthemata. The work from which we quote is the account of the yellow fever epidemic of Guiana, which prevailed in Georgetown between 1837 and 1842; that which lies before us contains the history of this sadly fatal disease as it occurred in 1851.

Although the term "Report" is applied to Dr. Blair's book, the word "Treatise" would be more accurately correct, for it comprises not merely a report of the outbreak of yellow fever and its progress, but a detailed statement of this disease. As such, there is scarcely a point which has not been fully considered by the author, and the book would be a useful one for reference. Here, however, we are obliged to make use of the words "would be;" for, printed as it is in consecutive chapters, without heading, and devoid of index or table of contents, it is impossible to find any particular subject without going through the book page by page—a matter of no little

trouble where the type is both small and crowded, with nothing presented to the eye calculated to arrest attention to any particular subject. Authors should recollect that *a book, to be useful, should be so compiled that it can be used;* and that, to make it so, and to render it available for consultation, ready access to its contents should be given. There are many points dwelt upon by Dr. Blair that men in practice might find advantage and pleasure from consulting; but, put the volume into the hands of any one seeking for information upon a particular head, and he will turn over page upon page before he can find what he desires, although the work in the entire does not number fifty leaves. We make these remarks with no wish to find fault, but really for the mutual advantage of both the writer and reader of any work. Many seem to think that because a volume does not extend to a large size, therefore there is no necessity for an index or table of contents. Of what use, comparatively, we may ask, would our Journal (or any other) be, to the profession, if we published it without a table of contents? The same remark holds good to every other work; and we have no hesitation in saying that the absence of it in the present instance is a great drawback to the value of the book,—for value it unquestionably has.

Dr. Blair has, as we have already stated, seen this scourge of the West on a very extended scale, and he has profited by what he has seen. The symptoms of yellow fever have been by him accurately and minutely described, and the treatment recommended is such as we believe to be the best under every circumstance; and the reasoning on which he grounds his practice generally very good. Commencing with a statement of the health of the colony, and the condition of the climate, as existing between the periods of the preceding epidemic and the present, Dr. Blair shows what has been usually observed—viz., that after an outbreak of this fever, the localities affected become unusually healthy for a while; until, indeed, "the epidemic wave, rising in the East, and flowing on westerly," returns over the devoted country:—

"The march of the epidemic, its dates and lines of diffusion, would indicate the influence of atmospheric currents on its progress; as, outside the boundaries of epidemic influence (described by the author) there was safety;" whilst "within its circumscribed range, the epidemic manifested local predilections; and though some places seemed permanently infected, the lines of infection occasionally shifted, as in the former epidemic, and infected and uninfected localities were temporarily in juxtaposition."

This accords with our own experience, as does also the succeeding paragraph :—

"Lulls and exacerbations in the general violence and intensity of the epidemic were frequently observed in its course,—these lulls being as illusive as the lull of symptoms in the fatal progress of the disease; and it was often the painful duty (of the author) to discourage the hopes that were so eagerly entertained by the authorities and the public, of the entire and speedy disappearance of the epidemic; and to resist, with apparent pertinacity, the repeated proposals for the return of the white troops to the military service of the colony."

The peculiarities attending the outbreak of this attack are then stated; and one of these is particularly correct, viz.—"that when the epidemic influence was strong, intermittent fever and its sequelæ disappeared."

The symptoms that characterized (or, perhaps, we should more correctly say, accompanied) this fever, have been very carefully noted and detailed; but occasionally other forms of disease, totally distinct from yellow fever, such as pneumonia, pleuritis, or small-pox, merged, as it were, into it; whilst—

"In the course of the epidemic, several long-standing cases of chronic disease, to the consternation and surprise of the bystanders, terminated suddenly and fatally by black vomit, without any precursory fever."

The points considered, in reference to the disease, as symptoms, are—

"Supraorbital headach, dorsal pain, sickness of stomach, vomiting, with a sensation of heat and thirst, sore throat, dysphagia, punctated tongue; *specific capillary irritation*, showing itself in the flush of the face, as characteristic as the hectic of phthisis, or the fuliginous complexion of typhus—this suffusion generally occupying a zone over the eyes, and about an inch above and below them; the nares injected, 'herpes labialis,' and a subcutaneous rash occasionally over the chest, extending to the arms and abdomen; and, besides this, another external or surface symptom connected with the skin."

The subject of yellow fever is an important one; for it has ever pervaded our West India possessions, and will, we fear, continue to so, if, at least, we may draw conclusions for the future from the past. This disease, however, shows itself in different phases—at one time, as the *mitior*, or ordinary form; at others, as the *gravior*, or pest of the latitudes. It is of the latter type that Dr. Blair treats in the work before us—the yellow fever as it manifests itself when truly epidemic.

By the terms "mitior" and "gravior," we do not mean to express two different diseases, but simply this, that yellow fever, more or less, is never totally absent from the West India islands as a group. Never, perhaps, can a period be named when cases are not occurring; still, as an epidemic, in the gravior form, we are thankful to say, its advent is only at intervals, and then not in a contagious form. True it is that occasionally a type will manifest itself similar to that which devastated the Eclair steamer, and which was communicable, and communicated in a lower temperature, even to the infection of a pilot in our Channel; but this is the exception, and not the rule. Yellow fever, as spoken of by Dr. Blair, is now admitted to be, by all who have had much experience of it—Ferguson, Davy, and others—a non-contagious disease; and as such do we regard it. Dr. Blair says:—

"The efficient cause of this disease is an acrid poison, probably organic, which requires a certain temperature for its generation and existence; and affects special localities and persons. This poison attaches itself to the mucous surfaces of the human body. One of the primary effects of such contact, when the quantity is adequate, is, to rouse the system into febrile action, and to excite, through the stomach and intestines, an effort to expel the noxious agent. There is reason to believe that this compulsory agent is sometimes successful unassisted, but is materially aided by the action of certain medicinal substances. In the event of the expulsory agent being unsuccessful, the effect of the poison is to act destructively on the epithelial structures of the body, by producing a specific irritation in the basement membrane, by which, and by allied consecutive lesions, the arterial and capillary tissues are impaired, the viscera become congested, the blood thereby contaminated by suppressed secretions, and fatal hemorrhage ensues."

To meet this disease, so fatal in its advanced form, Dr. Blair directs particular attention to the early or premonitory stages. He describes the symptoms that precede its development, usher it in, and accompany it in every stage. He refers to those which he considers as peculiarly expressive, viz., "headach," "tongue," and "surface symptoms;" and though, with the exception of the latter, we must say we see no marked variation from fever in its varied types, as exhibited amongst us at home; still, taken together, they cannot but be regarded as sufficiently indicative of the disease in the localities where it holds its sway, to induce the adoption of what our author so directly urges, as an abortive line of treatment, or check to its development.

This he most strongly recommends. He says:—

"When a medical practitioner was called to a case of yellow fever, in the formative stage (for the practised eye could even then discover its existence), or within a few hours after the development of the first stage of the disease, if he prescribed twenty grains of calomel, and twenty-four grains of quinine, and in six hours followed it by a dose of three ounces of castor-oil, he would, in perhaps nine cases out of ten, immediately arrest the disease."

This is, we fear, too great a step to take, for we know that practitioners of much experience, with every opportunity of observing the earliest departure from health, have adopted the calomel and quina treatment, both in large doses, or what may be termed "the abortive practice," and have not been able to ward off the subsequent stages of this disease. The fact is, that in yellow fever, as in all other epidemics, medicines and treatment that seem decisive at one outbreak appear comparatively valueless at another. Take morphia, for instance, in the work before us. At page 85 Dr. Blair remarks that, "of all the auxiliaries which must be occasionally impressed into the services of the patient, by far the most important is morphine;" and yet in his previous work, page 106, we read,—

"That amongst the medicines which were attended with danger in yellow fever, the salts of opium may be mentioned. I have seen stupor, prostration, and complete narcotism follow the use of three drops of the solution of the acetate of morphine (one-tenth of a grain of the salt). When this drug is used, it should be administered early in the disease; but, considering the tact and discrimination necessary to obtain beneficial results, it would be perhaps more judicious to place it in the *index expurgatorius* of yellow fever materia medica."

To neither of those statements can we adhere. Quina is valuable, very valuable, but not an antidote. Morphia is useful, and not a poison. Yellow fever must be treated on one principle only, viz., that of supporting the powers of life. If asked to name remedies in succession, we should say, a purgative, quina and calomel; cold affusion, hock, morphia in effervescence; turpentine, champagne, ether, brandy, with diet to correspond.

Dr. Blair has certainly gone more minutely into the consideration of yellow fever than any preceding writer. The microscope and animal chemistry have been brought to bear to the utmost; and nothing seems to have been left undone by him in his efforts to meet this disease. His zeal, however, has in some instances carried him beyond his reasoning, for how otherwise could such as the following occur? He says:—

"Seeing that herpes labialis was a favourable indication, and arguing that these vesications might be beneficial, from their situation at the termination of the mucous surfaces, we created, on several occasions, an artificial herpes, by brushing the lips and parts around the mouth with the acetic infusion of cantharides. This operation, however, was without results."

To which we can only say,—as might well be supposed.

To conclude our notice of Dr. Blair's Report with so severe a criticism, we should be unwilling, for it is really most creditable to him, and its perusal cannot be other than beneficial to any practitioner, but more especially to those located in the tropics.

Whilst on the subject of yellow fever, we may allude to the introduction of inoculation as a preventive measure for this disease, so promising, according to the statements of its author, but so unsuccessful in actual result. In the Medical Times and Gazette for January 12 of the present year, an extract is given from a New Orleans Journal, to the effect,—"that inoculation, as a 'protection' against yellow fever, had been tried in 3000 cases in that city, with entire success." The "Gazette Médicale de Montpellier," for March 15 of this year, offers a very different version of the story. In it, it is stated, as the experience of a Commission appointed to inquire into and report upon the plan of inoculation[a],—"That the result does not answer the intentions of M. de Humboldt, its author, whose object is the substitution of an artificial, instead of a spontaneous yellow fever." "That safety by inoculation has not been proved to result, but the contrary, considering the deaths of Gonzales and of Guimprecht (inoculated subjects). That the occasioning of a first attack does not guarantee from a second, whilst the introduction into the organism of putrid matter presents real danger to life, in proportion to the quantity absorbed."

On Improvements recently made in the Treatment of Stricture of the Urethra; being a Supplement to a Treatise on Stricture and Stone. By James Arnott, M. D., &c. &c. London: Churchill. 1856. Pamphlet, pp. 36.

We believe there is no surgical disease, any practical suggestion in the treatment of which is more eagerly sought

[a] Revue Thérapeutique du Midi, &c., March 15, 1856.

for, and more warmly received, than stricture of the urethra. The obstinacy of the affection in many instances, and the impossibility of effecting a permanent cure, except under peculiar circumstances, have directed special attention to its treatment, and, accordingly, stimulated the mechanical ingenuity of surgeons, which has eventuated in the invention of a large array of instruments, their design being, of course, the same, but their mode of accomplishing it vastly different. Thus it is that we have a host of contrivances for dividing stricture within the urethra; of carrying caustic to its anterior surface, and its interior; of maintaining permanent pressure against it; and of forcibly dilating it from within outwards; not to speak of the vast heap of bougies and catheters of various shapes and kinds, which have been constructed from time to time. Of all the contributors to this department of mechanical surgery, Mr. Arnott undoubtedly deserves the most merit for ingenuity, and can be superseded by few in claims to professional acknowledgment. Many suggestions in the treatment of stricture have emanated from this surgeon, but the invention of most originality, and the one with which his name is more especially associated, is the dilatation of stricture by fluid pressure. To one who is prejudiced in favour of methods to which habit has accustomed him, or who, owing to a limited practice, has met with few cases of stricture which resist for any great length of time the means of cure afforded by the bougie, employed in the usual manner, the plan of rapid and forcible dilatation may appear unnecessary in all cases, and actually dangerous in some. We are far from underrating the utility of the common bougie; on the contrary, we are of opinion that, in the great majority of cases, its employment affords the simplest, easiest, and safest method of cure; but every surgeon of much experience must admit there are some forms of stricture which this instrument is quite unable to overcome; many in which its use must be protracted beyond the limits of patience possessed by most individuals; and that, except in very incipient cases, the cure effected by it is but temporary. Now let us consider the grounds upon which Mr. Arnott urges the claims of the "fluid dilator," in preference to the bougie so long in use. They are principally threefold,—the greater certainty and far greater rapidity of the cure effected by the former instrument; the capability it possesses of dilating the strictured portion of the urethra to the fullest extent, without proportionably distending the rest of the canal; and, what follows from the latter effect, the greater duration, if it be not actual permanency, of the cure. These are cer-

tainly weighty advantages, but the last, the permanency of the cure, is the most important, and is that which Mr. Arnott's instrument is principally calculated to accomplish, since it can dilate the stricture to a great extent without painfully distending any other part of the urethra. In those strictures where there is copious adventitious deposit in the cells of the corpus spongiosum, it is obvious that nothing short of *extreme* dilatation of the contracted spot can effect absorption of the lymph, and accordingly a cure. If bougies of moderate size be employed, part only of the stricture—that which is formed by deposit in the mucous and submucous tissues—can be removed; the more remote part of the adventitious structure remains, and undergoes progressive cartilaginous change, as effectually as if no treatment had ever been resorted to. Hence it is that in such cases surgeons, if they wish to effect anything bordering on a cure, or at least to retard the progress of the stricture to the worst and most advanced state, must, if they employ the bougie, increase its size gradually to the *largest*. Now the distention of the whole canal, which is obviously the result of this process, is frequently productive of great mischief; the orifice, being the smallest part of the urethra, is unduly stretched, which causes severe pain, and the neck of the bladder is also liable to become irritated, so that the patient either refuses to allow the passage of very large bougies, or the surgeon is compelled to abandon their use from the supervention of "irritable urethra," retention of urine, rigors, or some other serious urinary annoyance. But if the stricture *alone* could be forcibly dilated, the evil consequence alluded to would be avoided, and this object it is which is attained by the ingenious contrivance of Mr. Arnott.

We cannot at present enter further into the merits of this invention, or sift its advantages: we shall, therefore, conclude our notice of the pamphlet before us by giving in his own words the description of Mr. Arnott's instrument, its advantages, and the improvement he has latterly effected in its construction:—

"The fluid dilator consists essentially of a strong membraneous tube, which is introduced into the stricture, and then distended with fluid by means of a powerful syringe. In its present improved state it will gradually open the contracted part to a diameter greater than that of the orifice or any other part of the urethra. It can be passed as easily as a bougie, and, when made expressly for the purpose, will enter a very tight or narrow stricture. As it dilates without moving forward at the time, there is none of the pain and injurious irritation from friction which is caused by instruments acting on

the principle of the wedge, and no danger of piercing the canal or forming a false passage. Another advantage of this excentric or directly outward action is, that more dilating force may be exerted than can be safely used with the sound, which has a tendency in its progression to push forward the stricture and tear it from the yielding canal. The rapidity of the dilatation effected by this instrument is also a valuable circumstance, saving much inconvenience and suffering, though of less importance than its durability and the safety with which it is effected. So long an interval has now elapsed since the first employment of fluid pressure in the treatment of stricture, that I have had abundant opportunities of ascertaining the permanency of its cures.

"The improvements recently made on the fluid dilator are, the substitution of a screw for the common piston rod of the syringe; of thick mucilage for water, as the injected fluid; of a strong silk tube woven for the purpose, instead of the former one made of riband; and of a mode of rolling up a waxed tube of this description, that it may pass without a wire into a narrow stricture. The instrument may now be considered perfect. The short silk tube, lined (when smallness of size is not required) with prepared gut or thin caoutchouc, is prevented from passing beyond the stricture in its earlier stages, in consequence of the bulk caused by securely tying its outer end upon the end of the metallic tube which conducts the fluid to it from the syringe; but the other end of the silk tube near the point of the instrument, which is usually tied to the end of the elastic wire projecting from the metallic conductor, ought to be of little size in order that it may enter, and be withdrawn from the stricture, without friction. The syringe is connected with the conducting metallic tube by a piece of flexible tube to prevent its jarring, and should be large enough to contain as much air and mucilage as will be required in one application. The screw piston rod enables the surgeon to make a degree of distention that would burst the strongest silk tube, which is much more than the toughest animal texture could resist; and as the amount of pressure can be exactly graduated by the screw, the patient may be desired to regulate this himself according to his sensations."

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PART III.

MEDICAL MISCELLANY.

TRANSACTIONS OF THE ASSOCIATION OF THE FELLOWS AND LICENTIATES OF THE KING AND QUEEN'S COLLEGE OF PHYSICIANS IN IRELAND.

(*Continued from* vol. xxi. p. 447.)

SESSION 1855–6.

SEVENTH MEETING, MAY 7TH, 1856.

DR. OSBORNE read a report of twenty-four cases of *Epilepsy*, arranged in a tabular form, being all the cases which had occurred under his care in Sir Patrick Dun's and Mercer's Hospitals, and of which sufficient records had been kept. On reviewing the results of different medicines, he was led to the conclusion that digitalis and cantharides are the two articles which exercise the greatest influence over the disease[a].

DR. M'CLINTOCK read a paper on *Phlebitis of the Great Venous Trunks of the Neck subsequent to Labour*[b].

EIGHTH MEETING, JUNE 4TH, 1856.

DR. MURNEY detailed the history of a case of *Nervous Palpitation of the Heart*, of a most rare and unusual form.

"Mrs. H. has been a patient of mine for the last two years, the disease for which she consulted me being paroxysmal palpitation of the heart, of a most unusual character.

"During the attack the pulse could not be reckoned after repeated attempts; however, I could manage to count from 18 to 20 beats in 5 seconds, which numbers, multiplied by 12, make 216 and 240 pulsations in the minute. The entire arterial tree seemed to be thrown into a series of rapid vermicular motions, which the slightest pressure obliterated. Placing the stethoscope over the

[a] To be published at length in the next Number of this Journal.
[b] Published among the Original Communications in this Number.

heart, I heard a short, quick, and rapid sound, almost as frequent as the pulse, but differing so far as it was distinct, clear, and unaccompanied by any abnormal murmur whatever.

"I could only hear one sound, and that, I was satisfied, was the first, as it followed the impulse of the heart, which latter was exceedingly feeble. I am well aware, that, in passive dilatation of the heart, the first and second sounds follow each other so quickly as to be scarcely distinguishable. I have examined this patient during the period she has been under my care once or twice a week, sometimes oftener, in the horizontal and erect position, and never have I found the least deviation from the foregoing description. The sound was more distinct over the apex than the base of the heart. Percussion elicited a somewhat duller sound than natural, but not of much importance in assisting to decide the nature of the case. There was a peculiar jugular pulsation above the clavicles over a small circumscribed space of about an inch in diameter, which pulsation was equal in every respect on each side, and seemed to be in harmony with the heart's action. There was no enlargement of the thyroid gland, neither was there any prominence of the eyes. The patient was annoyed by a teasing cough, without any expectoration; but auscultation could detect nothing abnormal in connexion with the lungs. The respirations were 30 in the minute.

"The diagnosis I made was as follows:—Dilatation of all the cavities of the heart, with attenuation of its walls; the lesion on the right side being, perhaps, greater than on the left. The absence of the second sound of the heart I accounted for as follows:—The muscular elasticity being diminished, or lost, owing to long dilatation, could not contract in its entirety; and the heart was compelled to contract partially, and with great rapidity, on its contents. The blood was, therefore, sent in continuous jets or waves into both the pulmonic and systemic vessels, and the mouths of the aorta and pulmonary arteries were consequently kept patent.

"It likewise occurred to me, on reflection, that the cardiac irritability and disposition to repeated paroxysms of palpitation might be thus accounted for. The heart, unlike all other organs of the body, receives its renewal of blood through the coronary arteries, during diastole, and not during its systole; from the nature, then, of the circumstances of this case, as described above, it appeared physically impossible that a due supply of nourishment could be distributed to its tissues, and that, consequently, it occasionally acted with increased intensity, as if endeavouring to overcome its own defective circulation, till exhausted by its efforts. This idea I throw out merely as a conjecture.

"The attacks of palpitation occurred every two or three days, without any assignable cause; they lasted for thirty or forty hours, and then suddenly subsided.

"My first examination was during a paroxysm of palpitation, but she came to me the following day, at my request, during an interval of freedom from attack, which she had predicted. The heart

was then calm; the sounds distinct and natural; the pulse 70 in the minute, and there was no precordial dulness. I obtained from her the following history of her case.

"Thirty-three years ago, when working at her trade (a straw bonnet-maker) she was suddenly attacked with violent palpitation, which lasted about half an hour, then subsided, and never returned for three years. After this interval she married, and when three months advanced in gestation, the palpitation again suddenly seized her, with greater severity, and lasted for three hours. A similar attack occurred every three months up to her accouchement.

"She had four children, and one miscarriage; and during each pregnancy she had a return of the attacks, similar, in every respect, to the first. All her confinements were easy and safe; she had no tendency to hemorrhage with any of them. All her children were healthy, and were nursed by herself, each for a period of twelve months. Whilst nursing she never had the least palpitation, and enjoyed excellent health.

"She never was one hour sick up to the period of the first of those attacks, which took place when she was about twenty years of age. She is now fifty-three years of age, and presents the wreck of what was once a fine, handsome woman.

"She has an anxious expression of countenance; her complexion is dark and sallow, and her lips are livid. There is a well-marked arcus senilis, but more distinct in the right eye than in the left.

"For the space of twenty-eight years these attacks recurred, at varied intervals, and it was impossible to draw any distinction between their duration and intensity during that period; but, for the last sixteen years, they recurred every three months, and on each of these occasions she had complete insomnolency.

"Occasionally, within the last few years, she has complained of a new train of symptoms, which occur towards the termination of the fits, viz., vertigo, tinnitus aurium, confusion of sight, weight and sense of constriction about the forehead, throbbing of the temporal arteries, the corresponding veins becoming congested and tortuous, but principally on the right side. She experienced, also, a sensation of nausea and acidity of the stomach, which was followed by the vomiting of a quantity of clear, oily fluid; after which she was accustomed to fall into a sleep, from which she awoke quite well, but greatly exhausted. She had the power of restraining, to some extent, the heart's action, by maintaining a position on the left side.

"She complained, also, of a distressing feeling of anxiety in the precordial region, and a shooting pain corresponding to the attachment of the pericardium to the diaphragm, and extending up to the left shoulder.

"The palpitations during gestation I do not look upon as very strange or unusual, as I am aware that many women have a distressing palpitation throughout the entire course of their pregnancy, which subsides, as it did with her, when labour had terminated.

"Every practical physician is well acquainted with the influence exercised by a bad stomach and faulty digestion towards producing palpitation of the heart; and is also aware of the heart's sympathy with the derangement of the liver and uterus.

"Amongst the various causes of irritation to which the intestinal canal is subject, there is none with which the abnormal action of the heart is more frequently and obstinately attended than with the existence of a parasite within that canal, particularly a tape-worm; and this exciting cause generally occurs at a time when the age is most susceptible of irritation, owing to the excitability of the system.

"We have no proof that this patient was ever the subject of such a malady; her own testimony is, that she enjoyed excellent health up to the first of the attacks described above, and still continues to do so during the intervals. The bilious symptoms that I have described could not be regarded as the origin, but the consequence, of the palpitation, coming on, as they did, towards the termination of the paroxysm, and not the attendants of each fit.

"This patient was never the subject of anemia, nor any of the functional derangements to which the uterine system is subject. She distinctly declares that her womb was always healthy, and that her catamenia remained regular up to five years ago.

"In examining the heart during its quiet moments, should we find the rhythm and sounds natural and distinct, and should we fail to discover any other physical or general signs of organic disease, we judge, that the palpitations and irregularities are merely sympathetic, and consequences of gastric derangement; but here the appetite and digestion were generally good.

"I have often examined this patient in the intervals of repose, and never could discover any trace of a past, or indication of the approach of a future paroxysm.

"In the usual palpitations, which are caused either by plethora or anemia, the impulse and sounds increase together, and so proceed to produce organic change, if the patients be not subjected to proper and judicious treatment.

"Dr. Hope alludes to cardiac or primary palpitation, of which he distinguishes three forms, according to the exciting causes: congestion; over-stimulating blood, or plethora; and the arrival of blood in excess to the heart. I am not satisfied that any of these could have been the only cause of the beginning of this palpitation.

"Palpitation of the heart is a frequent accompaniment of spinal irritation; and,—although the patient never complained of any symptom relative to that locality—treatment directed to the spine did not ameliorate her condition.

"Dr. Wardrop says that there is no better sign or evidence of there being a primary disease existing in the heart than the absence of all symptoms of disease in the digestive, respiratory, and nervous systems. I am morally certain that there was no disease either in the respiratory or digestive systems; but I am inclined to look on

this affection as some latent or obscure lesion of the cardiac plexus of nerves.

"Many of the derangements of the sympathetic system are enveloped in great mystery. I have been long of opinion, that, in many of the cases of angina pectoris, in which no lesion sufficient to account for death could be discovered, some affection of the cardiac plexus might have been found out, if a careful examination had been instituted.

"When we review this case, and consider the periodic attacks, extending over thirty-three years, coming on without any assignable cause, and in general subsiding suddenly, it appears to me, one strange and unusual, and difficult to be accounted for. Pure, idiopathic palpitation, uncomplicated, recurring at intervals of greater or less intermittence, is exceedingly rare. I never recollect having seen or read of a similar case. Dr. Law saw this patient in consultation with me, and willingly gave to me the result of his long experience and great powers of observation. He made no diagnosis further than to say, that it was not angina pectoris, and suggested some nervous medicines.

"Dr. Corbett, Professor of Anatomy and Physiology in the Queen's College, Cork, examined her also, and he suggested the propriety of examining the urine, with a view of directing treatment to the kidneys, but the urine, after repeated examination, was found healthy. The treatment consisted of iron and valerianate of zinc, in all their forms and combinations; digitalis, prussic acid, and morphia; strychnia, nitrate of silver, and turpentine. Not one of these medicines seemed to have the slightest effect on the paroxysms.

"I tried the inhalation of chloroform vapour, and, curious enough, it was impossible, while she was labouring under a paroxysm, to bring her under its influence. I often administered from three to four drachms, without producing the slightest effect, or the least abatement of the heart's action; whereas, in the intervals of freedom from palpitation, she was most susceptible of its influence.

"All the symptoms connected with this palpitation appear to be most incomprehensible, and the view I originally took I was soon shaken in, and finally abandoned. A symptom of great practical importance connected with this palpitation was the jugular pulsation before alluded to. This had all the character of regurgitation depending upon dilatation, or, perhaps, to speak more correctly, distention of the right cavities of the heart.

"It is difficult to define the collective groups of symptoms which constitute a paroxysm of angina pectoris; it is true, we have many of the symptoms of angina in the case above narrated, and, as in one described by Dr. Parry, the pain in the precordial region; but those unaccountable symptoms supervening and subsiding in so sudden a manner, and continuing to recur at intervals for so great a period of time in a person apparently healthy, render the diagnosis difficult, if not impossible.

"The patient being still under my surveillance, my conjectures may be either true or false, and as they were the most plausible at the time, I consequently adopted them; but, I must confess, after she had been some time under my care, the conclusions I had at first arrived at were being rendered very uncertain."

Dr. Churchill read the following observations on, and detailed the following history of, a case of *Softening of the Brain* in a child, aged nine years and a half.

Dr. Churchill first alluded to a case of ramollissement of the cerebellum, which he brought before the Association in the Session 1852–3; and in which, "the only marked symptoms were headach, in paroxysms, vomiting terminating these paroxysms, and slow but perfectly regular pulse, and, besides these, two others which only occurred once, and speedily passed away, viz., double vision and a kind of spasmodic action of both arms, but there never were either convulsions, coma, squinting, delirium, or paralysis."

The case he now wished to draw attention to was one of softening of some of the central portions of the cerebrum, in which the absence of the ordinary symptoms was even more striking. "Such cases," he continued, "occurring in children appear to be rather rare. MM. Rilliet and Barthez quote them, but none appear to have occurred within their own experience except as secondary to other diseases, or as consecutive to ancient lesions of the brain[a]. Genuine cases, however, have been repeatedly recorded by Abercrombie, Duparcque, and others, to which I shall presently refer.

"As to the disease itself, Dr. Abercrombie's description partakes of his usual clear precision. He divides the cases into two classes, one in which the disease attacks persons advanced in years, and which has been so ably investigated by M. Rostan; in the other, the disease was found chiefly 'in the dense central parts of the brain, the funix, septum lucidum, and corpus callosum, or in the cerebral matter immediately surrounding the ventricles, and occurred in persons of various ages, but chiefly in young persons and children.' He remarks subsequently:—'I am still disposed to contend that the ramollissement of young persons, occurring in acute affections, and seated chiefly in the central parts, is one of the terminations of inflammation in that particular structure'[b]. As regards the symptoms, he considers that they exhibit no uniformity, but 'the cases which terminate by ramollissement seem in general to be characterized by convulsions more or less extensive, followed by paralysis and coma, the convulsion ceasing some time before death; but in Case 27 the convulsions continued with the utmost violence till the very time of death. In Case 29, on the other hand, there was no convulsion, but a sudden attack of palsy, exactly resembling the ordinary attack of hemiplegia from other causes. In some of the

[a] Maladies des Enfants, vol. i. p. 150.
[b] On Diseases of the Brain and Spinal Marrow, p. 24–5.

subsequent cases, again, we find most extensive destruction of the cerebral substance without either paralysis or convulsion, and even without coma. In one remarkable case, to be afterwards described, viz. the last case under tubercular disease, we shall find destruction of the cerebral substance to as great an extent, perhaps, as is upon record; while the patient went to bed in the state of health in which she had been for many months before, and was found dead in the morning'[a]. With the exception of this observation, I find nothing in this author to lead us to suppose that the disease may exist with an absence of the usual symptoms of convulsions, paralysis, or coma.

"Dr. Rowland, in his Essay, enumerates all the symptoms of the disease which have ever been recorded, and gives us a comparative estimate of their value. For example, he speaks of headach being one of the earliest symptoms, but accompanied by confusion of thought, restlessness, excitement, and delirium: sometimes with a convulsive paroxysm, and afterwards with threatenings of paralysis. He remarks that, the 'character of the headach is not usually acute; but occasionally it is shooting and lancinating, like neuralgia. The nature of the malady might, therefore, be overlooked, especially as the headach occurs in paroxysms, sometimes even with distinct intermissions. A careful examination will, even under these circumstances, detect the lurking evil: obtuseness of intellect, or delirium, or some feeling of weakness, or tingling in the limbs, an anxious expression of countenance, or other sign, will be observed'[b]. Nevertheless, I do not find any intimation given, that cases occasionally occur, in which almost all the usual symptoms are absent.

"Dr. Russell Reynolds, in his valuable work on the Differential Diagnosis of Diseases of the Brain, gives a concise summary of the distinctive symptoms of cerebritis and ramollissement. He carefully points out intense pain, which often accompanies the former, and also the obscuration of the mental faculties, but he states that the stage is ushered in with convulsions. Partial cerebritis, he remarks, 'resembles more the non-febrile than the febrile affections;' and, so far, this is in accordance with the case I shall presently submit.

"MM. Rilliet and Barthez consider ramollissement of the brain to be extremely rare in children, unless where it is an accompaniment, or perhaps a consequence, of another disease, as hydrocephalus, for example: in which case they regard it as an œdematous softening, or when it is consecutive to ancient cerebral disease. They, however, quote two cases from authors, but in both, convulsions and other marked cerebral symptoms occurred.

"But, by far the most satisfactory account I have met with of this affection, is contained in a paper on the subject, by M. Duparcque[c], which I did not read until this paper was written out. He regards white softening of the brain as a primary affection, not in-

[a] Ibid. p. 108. [b] p. 35.
[c] Archives Générales des Médecine, vol. xxviii. p. 151. 1852.

flammatory, but dependent upon disordered vital action. From the five cases he has recorded, he has drawn the following general description:—'*Predisposing and determining causes:* precocious or developed intelligence, intellectual fatigue, profound or vivid moral emotions. *Positive symptoms:* headach with somnolence; integrity of the intellectual functions; exaltation of the special senses, and of the general sensibility; apyrexia, and even slowness of the general circulation. *Negative symptoms:* absence of delirium, of convulsions, of contractions; absence of stupor, of loss of intellect, of paralysis.'

"This summary evidently refers to a class of cases, in which we may include the one I am about to relate, and it differs remarkably from every other description of the disease I have read. One of M. Duparcque's cases, however, has such a striking resemblance to mine, that I hope I may be excused for giving a short abstract of it. The patient was a boy, aged 13, very intelligent, and at that time studying hard for a prize; he complained first of fatigue, restlessness at night, headach, which was relieved by vomiting. He returned to school, but was obliged to leave from headach and sleepiness, which continued the next day. He complained of headach, increasing in paroxysms; his intelligence was perfect; he was pained by light and sound, and sensitive to the touch generally, but there were neither convulsions nor paralysis. The skin was dry, warm; countenance calm; pulse sixty; urine scanty; tongue clean; bowels free. Considering the probable cause of the disease, and the symptoms which were referable to the brain, M. Duparcque satisfied the family that the child had cerebral fever (fièvre cérébral); but, as he candidly tells us, reserving to a latter period the decision, as to whether it was a case of 'cerebritis or of meningitis, simple or tubercular.' For some days the symptoms continued much the same, no new ones being developed. The pulse had diminished in frequency in the morning, and there was a slight exacerbation in the afternoon; 'little fever, little assoupissement, slight somnolence, neither contractions, convulsions, delirium, nor paralysis.' Under these doubtful circumstances, Dr. Blache was called in, and reasoning '*par voie d'exclusion;*' he rejected the supposition of its being either cerebritis, meningitis, hydrocephalus, or typhoid fever,' and decided in favour of 'nervous fever,' or 'nevrose cérébrale.'

"On the fourteenth day there was sub-delirium, stupor, agitation. It was difficult to make him speak, but he answered correctly. The eyes were turned up, the eyelids half open; the extremities became cold; the face changed; and in the night the respiration became embarrassed, sighing, and rattling; the head was thrown back convulsively, and he died.

"The post-mortem examination exhibited no marks of inflammation of either the membranes or the substance of the brain, but white ramollissement of both anterior lobes of the cerebrum, particularly of the left. The limits were not defined, but the solution

was greater in the centre and in front. Every other part of the brain was healthy. There were two or three spoonfuls of fluid in the ventricles, but not enough to distend them.

"From even the foregoing slight sketch of what is laid down in books, we may infer, I think—1. That inflammation and softening of the cerebral substance is somewhat rare in children. 2. That it is generally said to be accompanied with pain, obscuration of the intellect, disorder of the senses, convulsions, or paralysis, or all of those symptoms, according to the severity and duration of the attack. 3. That, however rare, cases have been recorded in which few, or none of these symptoms were present, and yet the patient died of ramollissement—whether inflammatory or not, may be disputed, but in which the disease appeared as a primary affection. 4. That such cases, from their rarity and the difficulty of diagnosis, possess great practical interest; and that, it is only by the collection of individual cases that we can hope to arrive at any positive conclusions.

"Case.—On Tuesday, the 21st March, I first saw A. B., aged $9\frac{1}{2}$, a little girl, of a slight, delicate appearance, with very fair skin and red hair, and of unusual intellectual activity,—a member of a family rather obnoxious to head affections: first complained of severe headach on Monday, March 17th, 1856. We have since found reason to believe, however, that she had been unwell for more than a week, but, as she was anxious to compete in some school examination, she concealed her illness from her mother. On the Monday, however, the pain was too violent to be longer hidden, and it continued without intermission, though with aggravated paroxysms, until I saw her. During this time she slept well, and had some appetite, but no fever. She insisted upon going to school on Wednesday, and was sent home, much the worse for the exertion and excitement.

"I found her in bed, complaining of severe pain and throbbing in the head (especially at the top), which increased occasionally to an almost intolerable degree. There was neither intolerance of light nor sound at that time. Her intellect was as active and clear as usual; she spoke freely, nor did she dream when asleep. There were neither startings, convulsions, nor stupor. The pulse was 74; neither full nor feeble, but slightly irregular. She had vomited once or twice, but, upon inquiry, I found that it was always after taking food or medicine; however, she took many things without vomiting; she complained of no nausea; the tongue was loaded, but furred and moist; the bowels were quite regular. The sensitive and motive powers were perfectly natural.

"These were the symptoms which presented themselves; and, judging by them, I found it no easy matter to come to any decided conclusion as to the nature of the affection.

"1. Of the reality and intensity of the headach there could be no doubt, and the case might be one of meningitis, tubercular or

simple; or it might be a mass of tubercular matter in the brain, or of inflammation of the cerebral substance. But if so, how account for the absence of disorder of the senses,—of startings, convulsions, or stupor,—of fever and delirium, or paralysis?

"2. If the case were the result of gastric disturbance, or were the beginning of infantile remittent, which would be consistent with the headach and state of the tongue, age of the patient, and absence of nervous symptoms, startings, convulsions, &c.; still there was no accounting for the quiet pulse, and the absence of remissions and exacerbations. Moreover, though there had been vomiting, it had only occurred a few times, and when provoked, and generally the stomach was little disturbed. There was no abdominal distention, and no disorder of the bowels?

"Could it be neuralgia? The age of the child was against the supposition; and the only argument in its favour was the deficiency of symptoms, characteristic of either of the diseases just mentioned.

"I found it impossible to come to any positive conclusion; and, if I have clearly described the case, it will be probably conceded to me, that the wisest thing I could do was, to suspend my judgment until the course of the disease should elucidate its nature. Meantime I treated the case, very cautiously, so as to meet the possibility of its being inflammation of the brain or its membranes. Leeches were applied, and the legs were fomented; a brisk purgative was given, followed by hydrargyrum cum creta and James' powder at short intervals.

"Whether the course of the disorder did elucidate its nature, remains to be determined; but, omitting *daily* reports, I shall state merely the changes in the symptoms throughout, in a more connected, though cursory manner, premising, that the patient died on Wednesday, April 2nd—the sixteenth day of her illness.

"The headach continued as bad as ever throughout the entire illness, unless, perhaps, the last two days, increasing in paroxysms, and accompanied by moaning. Still she slept very well at night, from which I infer, that the pain must have remitted; but she almost always woke with it. The sleep for the most part was sound and natural, but one or two nights it was so deep, as to resemble stupor while it lasted. Her intellect was clear throughout; there never was anything like delirium. At first she spoke freely; but as the disease advanced, she either could not or would not make the effort to speak,—I rather think the latter, as she occasionally spoke a few words, quite intelligibly, up to the last day; up to within an hour of her death, she evidently recognised those around her. She never had either startings, squinting, the least convulsion, or loss of power. Occasionally, but not frequently, she yawned. The vomiting ceased entirely the day after I first saw her, and never returned. There was no thirst up to the twelfth day, and no appetite; the bowels required, at first, a little medicine, but afterwards she was troubled with mercurial diarrhœa. The urine was secreted

in the natural quantity, and of the usual appearance; but towards the end she had twice some delay or difficulty in passing it, which speedily disappeared.

"The senses at first seemed more acute, both light and noise annoyed her; but, after a few days, this diminished; a strong light seemed disagreeable, and throughout, although the pupils answered to the light, I should say that, considering the position of her bed, facing the window, they were ordinarily more dilated than one would have expected.

"The pulse, I have mentioned, was at first about 72, and slightly irregular; but this irregularity disappeared after two days, and never returned; when asleep, it was below 70. This continued up to the twelfth day, when suddenly, in the afternoon, a smart outburst of fever occurred; the skin became hot (having been quite natural previously), the pulse rose to 120, and there was great thirst. I do not think the headach was worse, and no nervous symptoms were developed. This attack lasted five or six hours, and then subsided, without perspiration. She fell asleep, and in the morning I found a complete remission. The same attack was repeated on the thirteenth, fourteenth, and fifteenth days, but rather less severely each day; so that on the day she died, the prospect seemed rather less dark than previously; although the exact nature of the disease seemed, if anything, rather more obscure.

"Thus, on April 2, at 9 o'clock, of the sixteenth day, she took beef-tea, swallowed well, recognised those around her, and seemed unusually free from headach and fever. At 10 o'clock she suddenly became insensible, but not convulsed; the breathing became laborious and rattling; the pulse, quick and weak; lips blue; countenance livid; and at 11 o'clock she died quite calmly.

"However puzzled I might be to explain satisfactorily the nature of the attack, it was quite clear that there were grounds for very serious apprehension, and that the wiser plan would be to treat the case as disease of the brain, with such modifications as the symptoms called for; and in this view I was fortunate to have the concurrence of Sir H. Marsh, who saw the patient with me soon after the commencement of my attendance, and up to the day but one before she died. We applied leeches to the head and feet, blisters constantly renewed to the neck and head; ice to the head; mustard cataplasms to the legs; gave hydrargyrum cum creta, subsequently calomel and James' powder, until diarrhœa had set in, and afterwards James' powder alone, and mercurial frictions; but I cannot say that even temporary relief appeared to result from any of these measures.

"Having obtained permission to examine the head, Dr. M. Collis was good enough to make the post-mortem dissection, about twenty-four hours after death. There was no congestion of the scalp, but on raising the skull, we found the superficial vessels of the brain were somewhat fuller than usual; there was no opacity of the arachnoid, no tubercular deposition, and no effusion. The sub-

stance of the brain was natural to a considerable depth, but we found the posterior portion of the great commissure of the brain, the fornix, and septum lucidum, so much softened, as to be semifluid. It was of much the usual colour, neither yellowish nor reddish. A superficial layer of the corpus striatum was also softened. The ventricles contained a considerable quantity of opaline serum; and there was more beneath the arachnoid of the cerebellum, and at the base of the brain, but nowhere did the membrane exhibit marks of inflammation.

"Thus we see that we may have fatal softening and effusion, with an absence of almost all the symptoms which are usually attendant on these affections; for the only permanent symptom in this case, and, I may add, aspect of serious disease, was the headach. Neither fever (at first) nor disorder of the senses or intellect, no starting, convulsion, nor paralysis, no continued vomiting nor obstinate constipation, marked the disease. Towards the end, indeed, a change took place, and then the aspect of the complaint rather resembled remittent fever than anything else.

"There is, however, a very important question remaining for consideration, viz., the relation, in point of time at least, of the softening and the effusion. Was the case one of inflammation of the brain running on into softening, followed by effusion; or was it a case of arachnitis, in which the softening was a secondary consequence, as noticed by Rilliet and Barthez? So far as we may venture to draw an inference from the history of the case, I think it is in favour of the softening being the primary disease, for we know, as in the case to which I alluded in the commencement of this notice, that ramollissement of the central nervous structure may exist with but few symptoms; whereas I believe it to be extremely rare, if it ever occurs, that meningitis should run a course of sixteen days at least, with such an utter absence of the ordinary characteristic symptoms.

"My own impression is, that the primary affection was inflammation of the central portions of the brain, and that the membranes participated in the morbid action, about the time when the febrile action set in; but that the effusion did not occur until the morning of the day on which she died, and that it was the immediate cause of death."

Dr. Hudson read a paper on *the Signs of Excentric Pressure in Pericarditis, with Effusion*[a].

[a] To be published in the next Number of this Journal.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

(*Continued from* Vol. xxi. p. 466.)

SESSION 1855–6.

Third Meeting, April 4th, 1856.

Dr. George Montgomery detailed the following history of a *Triplet Birth*, which recently occurred in the Dublin Lying-in Hospital. One of the children was born alive, after having undergone the process commonly called "spontaneous evolution." All did well.

"As cases of *triple births* are of extreme infrequency, occurring in this country only once in about 5000 deliveries, I have thought that the history of a case which happened recently in our hospital, would not be uninteresting; more particularly, as it was attended by some unusual circumstances which I think of considerable practical importance.

"The subject of these observations is Jane Toole, a delicate-looking woman, of about twenty-eight years of age; her husband is a shoemaker, and she resides at 48, Golden-lane, in this city.

"Jane Toole was admitted into the Rotundo Lying-in Hospital on Tuesday, the 1st of April, 1856, at 11 o'clock A.M., in labour, as she said, of her fifth child.

"She stated that, for several months past, her health had been 'wretchedly bad,' and her stomach so irritable that every species of food was rejected; her attenuated frame, and great debility, sufficiently attested the truth of this statement. She complained, also, that her bowels were, in general, obstinately constipated; and stated that she had enjoyed excellent health in all her previous pregnancies. She was not positive as to the exact date of the last catamenia, but says it was either towards the end of July or the beginning of August, 1855.

"The abdomen appeared very large, and there was œdema of her feet and legs. Labour set in before 9 o'clock on the morning of her admission; when the os was found dilated to the size of half-a-crown, soft and flaccid, the head presenting, and the membranes unruptured; but the pains were weak and inefficient. At about 3 o'clock in the day, the pains still continuing the same, another examination was made, and it was found that labour had not progressed. She appeared to be very weak, and was ordered some beef-tea. At 4 o'clock the pains were somewhat increased, and the os was then found rather more dilated. Strong pains now occurred, and before twenty minutes had elapsed, the membranes were found protruding externally; they were ruptured, and in a quarter of an hour more she gave birth to a healthy boy.

"The hand over the abdomen now detected that it was very little diminished in size, and an examination confirmed our suspicions that there was a second child in utero. In about five minutes the second membranes ruptured, and, the right hand and arm coming down, presented externally, the aspect of the palm being anterior.

"During the minute or two that elapsed whilst I sent down stairs for the Master, who was in the house at the time, the arm and side of the thorax rapidly descended under the frequent and strong contractions of the uterus; so that, by the time that Dr. M'Clintock entered the ward, the *entire* arm was expelled beyond the vulva, and the right and rather posterior part of the thorax was actually pressing on the perineum.

"Turning was out of the question, and it was apparent to all that the child would soon be expelled by the unaided efforts of nature—in fact, the breech was actually beginning to descend into the hollow of the sacrum, and we surmised that '*spontaneous evolution* of the fœtus,' as described by the late Dr. Douglas, would take place, which really did happen, as will be presently seen.

"At this stage of the process we felt curious to know whether the child was still alive; and on placing the end of the stethoscope between the labiæ, against the thorax of the child, a feeble cardiac pulsation was distinguishable.

"To expedite the delivery of the child, a finger was hooked in the flexure of the nearest thigh, when the next pain expelled the breech; the extraction of the *left* arm and head was easily effected, and though the child seemed weakly when born, yet very little exertion was required to establish respiration in a satisfactory manner; this child was also a boy.

"The uterus still remaining above the umbilicus, another internal examination was made, and a third child was detected presenting with the *breech;* the membranes were at once ruptured, and she was soon delivered of a third boy, which was alive and strong.

"The woman was much exhausted after the completion of the labour, and the pulse extremely weak, beating but thirty strokes in the minute; she was, consequently, allowed a few ounces of brandy, in addition to some wine which had been previously given immediately after the birth of the second child.

"The uterus contracted tolerably well, and in about ten or fifteen minutes the placentæ were expelled, accompanied with some hemorrhagic discharge.

"Two of the placentæ were united into one mass, and the other was perfectly distinct; each fœtus was enclosed in a separate bag of membranes.

"With a view to maintaining uterine contraction, so as to prevent the occurrence of any further hemorrhage, the effects of which were much to be dreaded in her then exhausted state, half a drachm of the powdered ergot of rye was administered in some brandy; this, with the steady application of the hand over the uterus, had the desired effect.

"About three-quarters of an hour after delivery there was a return of weakness. She became restless, and vomited a large quantity of fluid; and, in addition to these symptoms, there was a state of slight general spasm, bordering on convulsions, with grinding of the teeth, but without any loss of consciousness. She was ordered a small quantity of burnt brandy, forty drops of the solution of the acetate of morphia, and half a drachm of Hoffman's anodyne.

"The children were carefully weighed and measured, immediately after birth. The weight of the first born was 5 lb. 6 oz., that of the second 4lb. 10 oz., and of the third 4 lb. 14 oz., making an aggregate weight of 14 lb. 14 oz., avoirdupois. The length of the first was $18\frac{1}{4}$ inches, and that of the second and third 18 inches each; the mother and children are all going on well, at the moment I now speak.

"Perhaps the most interesting point of a practical nature connected with this case, is the mode of delivery of the second child, which, we shall presently show, corresponded in every particular with Dr. Douglas's description of '*spontaneous* evolution of the fœtus.'"

Dr. Montgomery then quoted Dr. Douglas's description of the mechanism of spontaneous evolution, and proved satisfactorily to the Society, that the mode of delivery of the second child, in the case just detailed to the Society, was precisely in accordance with Dr. Douglas's description. He concluded his paper as follows:—

"In all the examples of *spontaneous evolution* recorded by Dr. Douglas, the child was still-born; and though very many observers, of large experience, have also published cases of the same mode of delivery, yet, after some research, I am not able to find more than two instances where the child was expelled alive, as above described; one recorded by Dr. Read in the Medical Gazette, and the other by Dr. Mitchell in Hay's American Journal of Medical Science. Hence, then, we may fairly infer that the preservation of the child under this mode of delivery is a circumstance of extreme rarity.

"It is a curious coincidence, that the first case seen by Dr. Douglas occurred in the same ward of our hospital (No. 3) as the one I have just read. Dr. Douglas says:—'The first time I had an opportunity of witnessing the process of the evolution of the fœtus was in the Lying-in Hospital of this city, in the year 1810, at which time I was resident of that establishment; the case occurred in ward No. 3.'"[a]

[a] Dr. Montgomery has since informed the Secretary that the woman and children, the subjects of this case, did well, and were all discharged in a healthy state. The mother's health improved considerably during her sojourn in the hospital, which was prolonged much beyond the usual term, on account of her previous delicacy. The Secretary has also been directed to state that the children were christened by the following names, in the order of their seniority:—Francis Alma, Edward Inkerman, and James Sebastopol. It may be gratifying to know that a list was immediately formed, and a sum of money collected for the benefit of the poor woman; and that, at the head of the subscribers, are our most gracious Queen, and her much respected Viceroy.

Dr. M'Clintock related the particulars of a case in which *the enlarged clitoris had been removed by operation.* The subject of the case was a country-woman from the county of Kildare, and a patient in the chronic ward of the Lying-in Hospital. She was about six months pregnant, and exhibited enormous hypertrophy of the nymphæ and clitoris (a very faithful drawing of these parts, executed by Mr. Connolly, was shown to the meeting). In appearance these structures are of pinkish colour, and tuberculated. She suffered no pain, but much discomfort, when standing or walking, from the bulk and weight of the growth. Nine years ago, she contracted venereal disease from her former husband, but subsequently gave birth to a living child. Three years ago she was married to her present husband, and about a year after this event, she observed these growths beginning to make their appearance. Since the time of conception they have rapidly augmented in size. On admission they were œdematous, and to relieve this condition they were occasionally punctured with a needle. This operation always produced considerable pain.

The clitoris was the size of a turkey's egg, and had a pedicle, or neck, about the thickness of a man's index finger. A strong silk ligature was tightly applied round this pedicle, and the tumour excised below the ligature two days afterwards. As complete strangulation had been effected, not a drop of blood followed the amputation. From the examination of the incised surface, it was evident that some vessels of considerable size extended into the clitoris. The woman left the hospital some days afterwards, with the intention of returning for her confinement.

Dr. M'Clintock also related the history of a case of *Difficult Labour from Occlusion of the Vagina.* A. D. was in labour of her first child, having been ill for several hours previously with strong pains. On examination per vaginam, this canal was found to terminate in a well-marked cul-de-sac, an inch and a half or two inches within the vulva. No aperture could be discovered with the finger in this septum, and yet she said she always menstruated, but that copulation was attended with some difficulty. Through this membrane, the liquor amnii and head of the child could be very distinctly felt, leading to the conclusion that the os uteri must be fully dilated. When the labia were forcibly separated, so as to bring the occluding membrane into view, it was seen of a reddish colour, like the rest of the vagina, and studded with small white glands or papillæ. At its junction with the recto-vaginal wall, there was a slight fold or depression in the membrane, and here a fine director was passed through with little force, though not without occasioning a few drops of blood to be discharged. On withdrawing the director, some dark fluid, like meconium and water, flowed out. A probe-pointed bistoury was now introduced along the director, and the sides of the opening freely incised. After this the head of the child soon came down so as to occupy the pelvis. Eventually it was necessary

to deliver her by craniotomy, on account of the supervention of bad symptoms, and the forceps failing to extract the head.

Fourth Meeting, May, 1856.

Dr. Maurice Collis detailed a case of *Vesico-Vaginal Fistula* which he had completely cured by operation. The fistula was the result of protracted labour (70 hours), during which it had been found possible to empty the bladder once only; delivery was naturally effected. A month after, when the woman applied to Mr. Collis, he found a transverse rent, large enough to admit the tips of three fingers, situated behind the crest of the pubes, and completely severing the urethra from the neck of the bladder; the hole into the bladder was large enough to admit the tip of the little finger. There was no power of retention, but the bladder was still capable of distention, not permanently contracted.

Mr. Collis operated on the 31st of March, with the help of Drs. Jameson, Hudson, and Churchill. The operation consisted in raising flaps of three lines in breadth from both edges of the long transverse rent, and bringing the flaps together by three points of quilled suture, in such a way as to keep their flat surfaces fully in contact. By this means union by the first intention was obtained through the entire extent of the fissure. A flexible catheter was retained for seven days. The sutures, which were of thread, were removed on the fifth day, and the woman was able to go about on the eighth. The bowels were kept confined for six days by opium, in the manner recommended by Baker Brown, and then gently moved by castor-oil. The completeness of the cure was proved by inspection; the entire cicatrix could be readily brought into view in the position for lithotomy; water was injected into the bladder to the extent of eight ounces, and could be retained or passed *ad libitum*, not a drop passing except through the urethra; in less than three weeks from the day of operation the patient could walk for half an hour, retaining power over the muscles of the urethra, and could sit for two hours; progressive improvement continued.

Mr. Collis attributed the complete success in this case:—

1st. To the ease with which the rent could be brought into reach.

2ndly. To the extensive dissection of the flaps, and the large extent of raw surfaces brought into contact.

3rdly. To the removal of the sutures the moment they began to ulcerate.

4thly. To the perfect repose of the patent, the rectum and bladder included; and—

5thly. To the patient having applied for relief within a month after the accident occurred, and before the bladder became permanently contracted from want of use.

Dr. Minchin read a paper on a singular *Abnormity of Cranial Development*, associated with a very unusual configuration of the head. Several drawings and some dried crania were exhibited to the

Society. The views put forward by Dr. Minchin with reference to these crania were not altogether of an obstetric nature, as they embraced some topics of great interest in connexion with the subject of anomalous configurations of the head, and their dependence to a certain extent upon *natural* as opposed to extrinsic and artificial causes[a].

Dr. Henry Kennedy read a paper on the *Coexistence of Functional and Organic Disease of the Kidney;* and on the use of mercury in some cases of Bright's disease[b].

TRANSACTIONS OF THE COUNTY AND CITY OF CORK MEDICAL AND SURGICAL SOCIETY.

(*Continued from* vol. xxi. p. 481.)

SESSION 1855–56.

CROSS HOSPITAL, COLLEGE OF SURGEONS IN IRELAND · LIBRARY

March 26th, 1856.

Professor Harvey, President, in the Chair.

Dr. Finn narrated the following case of *Confluent Small-pox:*—

William Thomas, a mulatto, aged 22, seaman, a native of Owhyhee, was admitted into hospital on the 10th March last, having been removed from a vessel which was leaving the harbour. He laboured under febrile symptoms, which ushered in an attack of confluent small-pox; and also complained of cough, and pain shooting through right side of chest. He had never been vaccinated. His general conformation was rather slight, the trunk and upper extremities, especially, presenting, in respect of muscular development, a condition the reverse of that usually observed in those engaged in the same occupation.

March 12th. Complained much of soreness of throat, with difficulty of deglutition; voice reduced to a scarcely audible whisper. On looking into the mouth the hard and soft palates, interior of cheeks, &c., were observed to be densely covered with pustules. He suffered much inconvenience from a quantity of viscid saliva constantly issuing from the mouth. The pustules over the body, generally, contrasted with those ordinarily observed, in presenting a larger diameter, and at the same time a more flattened surface.

[a] Owing to the delay occasioned by the necessity of having the illustrations engraved, the publication of this paper *in extenso* has been deferred until the next Number of this Journal.

[b] Published amongst the Original Communications in this Number.

Towards the close of the secondary fever, he suffered from costiveness, which was relieved by appropriate means. During the progress of this case no symptom presented itself which might be regarded as portending an unfavourable result, until the secondary fever had almost terminated, when, for the first time, the face assumed a pallid hue towards the angles of the jaws, and a few ecchymoses of a limited extent were observed on the lower extremities and trunk. The pulse was not materially altered in character. Death took place on the ninth day after admission.

Autopsy.—The tongue was unusually pale, and the pustules observed on it a few days previously were with difficulty recognised. The mucous membrane of the larynx, trachea, and œsophagus presented the natural appearance. Nothing abnormal was observed in the lungs and heart. The liver, though unaltered in its configuration, was much congested towards its free edge, where, for about the extent of an inch, both on its anterior and posterior surfaces, the congestion assumed the appearance of a purple border, along its entire length transversely. The coats of the stomach were thickened and corrugated, but the mucous surface appeared healthy. The brain was not examined, no cerebral complication having been suspected.

The absence of structural change in the viscera subjected to examination invests this case with a painful interest, involving, as it does, in obscurity the cause of its fatal termination. The sudden removal, however, of this individual from the vessel as it was about to leave the port, the abrupt severance of all relations with his companions on board, and his subsequent confinement in a ward, apart from the other patients (a precautionary measure necessitated by the serious outbreak of small-pox in this city at the period in question), contributed, probably in no small degree, to the fatal result, having severally exercised, it may be presumed, a depressing influence on a nervous system already suffering from the disturbance of innervation, incident to symptomatic fever in an aggravated form.

May 14th, 1856.

Professor Harvey, President, in the Chair.

Case of Labour with Ruptured Uterus. By Dr. W. H. Sandham, North Main-street.—"Mrs. C., aged 40, twice married, stout and healthy, had three children at the full time, still-born, with each of which she had bad confinements, and was told by her last attendant, the late Dr. Kehoe, that, 'should she have another, she could not survive it.' She took her labour on Sunday evening, April 20, and on Monday, according to the midwife's account, the membranes were ruptured. At 3 o'clock A. M., on the following Wednesday, I was sent for. I found her strong, and her circulation good, but in evident dread of the result, as she almost immediately begged of me, 'as she knew she could not be delivered in the natural way, to open the side and remove the child.' What put this in

her head I cannot tell, unless the prophetic language of her late attendant. On examination per vaginam, I found the os uteri fully dilated, and the elongated scalp presenting very little below the pelvic circle; the side of the occiput rested firmly on the crest of the pubes. She had pains at regular intervals, but they at once struck me as being of that suppressed character indicating some obstruction. I still more minutely examined, and reached the ear, and at the same time discovered a more than natural projection of the promontory of the sacrum, which I considered as the probable impediment to delivery. The nurse assuring me that the fœtus occupied the same position from the day before, I at once endeavoured to deliver her with the long forceps; with very little difficulty I succeeded in passing in and locking the blades, but no effort of mine could succeed in disturbing the head from its position. The abdomen was exceedingly tense, and hung forwards over the pubes in a remarkable manner. After taking considerable pains to deliver her, I determined, if possible, to suspend the uterine action, and procure her some repose. I administered a full dose of laudanum, and left her at 6½ o'clock, requesting the husband to inform me when she awoke. At 11 o'clock I again saw her; the opiate failed to procure sleep, but the pains were not so distressing. On examination the head still occupied the same position; I again, with ease, introduced the forceps, and, after using considerable force, could not stir it in the least. I then called for another to assist, and at 3 o'clock P. M. my friend, Dr. M'Evers, and I visited her, and on examination satisfied himself of the difficulties present. We agreed to wait until 5, and in the meantime endeavour to procure her rest; an anodyne was accordingly given. When we returned to deliver her at 5, the moment we approached the bedside we saw she was dying; she was retching, and the pallor of death on her face, very restless, and pulse sinking rapidly; we could not, under such circumstances, do anything to relieve her, and in less than an hour she died. As I was anxious to find out the cause of death so sudden, I represented to the husband and mother that it was usual, in such cases, to remove the child, and next morning they called on me and requested I would do so.

"*Autopsy*, eighteen hours after death.—On examination of the abdomen externally, previous to section, I felt one large, hard tumour hanging over the edge of the pubes, and another immediately above the umbilicus, close to the diaphragm, leading me to suppose she had twins. I made an incision a little to the right of the medial line, extending from the edge of the rib to the crest of the pubes. On the edges of the incision being drawn apart, the first thing that presented itself was a vast clot of extravasated blood concealing all below; this at once revealed the cause of death. On carefully removing this, things were as follows:—Superiorly lay the breech and back of the thighs, with the scrotum hanging forwards between them, the legs crossed one over the other; below this was a large detached portion of the placenta; lying transversely, still

lower down, was the uterus, the walls very much thickened, contracted, and bloodless, and hanging over the pubes. I first caught the fœtus by the legs, and gradually raised it out of the abdomen, but when the head came to be removed, it required some little force to take it from its position. The child was a very large male child, the head very large, and the scalp elongated, and was marked in the usual way by the forceps, and showed the good position the blades occupied. The head measured round the occiput and chin 18 inches, round the parietals 16½ inches; breadth of shoulders 7½ inches, and 22½ inches in height. I next removed the placenta, but first cut the uterus, which I now found ruptured to a considerable extent, so as to enable me to peel off the attached portion; on now viewing the empty uterus in situ, it lay as before described, tilted forwards, but it was torn transversely for about three-fourths of its circumference, at the point where the neck and body united, and appeared to be that part which was pressed between the promontory of the sacrum and parietal protuberance of the child, which circumstances have led me to conclude that this pressure, exercised for so long a time on one particular spot of the uterus, with the efforts of the uterus itself, was the cause of the rupture. In order to remove it from the abdomen, I simply completed, by incision, the laceration already described. I also now satisfied myself of the contracted state of the antero-posterior diameter of the pelvis.

"At 2 o'clock, the hour Dr. M'Evers and I saw her, rupture certainly had not taken place, for at this hour I examined her and felt the uterine contraction, and the woman pulled hard beside; both considered that she had a good and strong circulation. Concluding there must have been some sudden hemorrhage, I inquired of the nurse whether there was any since we last saw her, and being told she had none, and that she made no complaints of any sudden internal feeling, I then considered that death was caused by fright, as she feared very much for her safety when she saw two doctors necessary, and a serious operation about to be performed. The moment we entered and got to the bedside, we saw she was dying, so exsanguined was the countenance; the pulse could not be felt, and she died in less than an hour.

"There are two questions in this case I think worthy of discussion, as they are of great consequence, not only to the parties immediately concerned, but to the public at large. In a former paper I advocated the early evacuation of the waters, and the present case, with very many others, have convinced me that we should not trust nature too much, but at the proper time, without hesitation, bring in the aid of art, and, if possible, relieve the patient of her sufferings, and save the infant's life. First, then, I would ask, what is the proper moment for instrumental interference? Next, in a case such as the one now brought forward, where the death of the parent is inevitable, what should be the practitioner's conduct with reference to the infant, he supposing it still alive? My own opinion is, that he should watch the moment of the parent's demise, and then

save the child by the Cæsarean section. In a case I had some time since, of a young woman, who, after carrying a heavy load on the head at her full time, fell down suddenly and expired, I at once proposed saving the child, but the husband had some little delay in searching for and getting the consent of the sister. I opened the side and delivered the child, a fine healthy female, which I am satisfied might have been saved alive were not time lost. And this, and the case now related, have made such an impression on my mind, that I intend strenuously advocating such practice.

"These questions are of such importance, that, could we arrive at a unanimous opinion, the sufferers and the public, no doubt, would be gainers."

On exhibiting the ruptured uterus, the lacerated edges were seen rugged and very thin, compared to the part in the centre cut by the scalpel; the torn edges were the only part where red blood was visible; the part cut to enable Dr. Sandham to detach the placenta, having a cheesy granulated appearance, and very firm from contraction.

Unusual mode of termination of a Case of Ascites. By Dr. Finn.—Margaret Keeffe, aged twenty-five years, married, and mother of several children, was admitted into the North Infirmary on the 8th December, 1848. She stated that she had enjoyed habitual good health until the year 1847, during which she suffered from typhus fever and dysentery, with a short interval between both attacks. Whilst convalescing from the latter disease, she observed, for the first time, considerable swelling of the feet, and at a later period some fulness of the abdomen, which latter gradually increased to such an extent as entirely to interfere with her activity. Her appetite was much impaired, and the catamenia had been interrupted for several months; but the expression of her countenance did not suggest any serious impairment of health. The œdema of the lower extremities soon yielded to treatment; and absorption of the abdominal effusion was proceeding in a more gradual manner, when acute bronchitis supervened, with the immediate effect of interrupting the favourable solution in progress. The ascites reaccumulated in the course of a few days, and the respiration soon became so embarrassed as to render surgical interference inevitable. The operation of tapping having been performed by Professor Bullen, a very large quantity of fluid was withdrawn; and her convalescence proceeded so favourably for the space of a month as to suggest no ground for apprehension with respect to the recurrence of the dropsy. A slight exposure to cold, however, occasioned a second attack of bronchitis, and the abdominal effusion was almost immediately reproduced. The usual remedies, now for a second time, failed to control the progress of the effusion, and paracentesis was again determined on; but happily on this occasion the necessity for this last resource was superseded by an unusual phenomenon which presented itself, serous fluid having issued in large quantity from both

nipples, and having continued to exude for several hours; contemporaneously with this exudation the abdominal effusion perceptibly diminished; and it wholly disappeared in little more than twenty-four hours. The pathological significance of bronchitis, as an element in the production of ascites, is sufficiently obvious; but less intelligible, in a physiological point of view, is the consensus apparently manifested in this instance between the liver and mammary glands, organs, whose anatomical relations preclude, at least in ordinary circumstances, the interposition of friendly offices in the manner described. Was the fluid contained in the abdomen conveyed by metastasis to the mammary glands, to be thence eliminated? Or, was the mammary exudation a vicarious and independent secretion, designed with an immediate view to the readjustment of the balance between secretion and absorption; and having for its prospective object the correction of the derangement of the female economy referred to? This supposition would appear to be more consistent with probability, and, in conformity with it, the excitement of the mammary glands may be regarded as the reflex of some inchoate irritation of the uterus, the conservative instinct of this organ having, as it were, taken alarm at the effusion in proximity. The subject of this case was dismissed from the hospital on the 4th May, 1849, quite restored in health; and when seen three years afterwards, she stated that she never suffered from the slightest illness during that period.

May 28th, 1856.

Professor Harvey, President, in the Chair.

Case of Idiopathic Hematuria.—By R. Corbett, M. D.—"On Friday, April 11, 1856, I casually met J. E., Esq., who told me that he was passing blood per urethram, which for the first time he had that morning observed. Having been under Dr. Hobart's care for paronychia, I asked if he had informed Dr. Hobart of the symptom; he said yes, and that Dr. Hobart had directed him to take small and repeated doses of tincture of muriate of iron, but with which he had not complied, as he acknowledged. On Sunday morning, the 13th, owing to Dr. Hobart's absence from home, I was sent for, in consequence of the hemorrhage persisting, and that to a considerable amount, with clots at the bottom of the vessel, after each act of micturition. Having seen the case, I was on my way to an apothecary to direct gallic acid, when I met Dr. Hobart, and brought him at once to visit the patient. Dr. Hobart concurred with me in the propriety of administering the gallic acid, and doses of 5 grains in solution were directed to be given every second hour. Thirty grains having been taken, without having made any impression, the dose was increased to $7\frac{1}{2}$ grains, and subsequently to 10 grains every third hour, but after the exhibition of 130 grains the hemorrhage was unchecked.

"Tuesday, midday. It was agreed to have further advice, when

Dr. Townsend was called in, but did not see the patient until 5½ P.M., when, after consultation, it was decided to give alum in the acid infusion of roses instead of the gallic acid, and accordingly an ounce of a mixture consisting of 6 ounces of acid infusion of roses, and 3 drachms of alum, was directed to be taken every third hour. At our visit on Wednesday morning there was no improvement, but it was determined to persevere in the alum mixture until we again met at 5½ o'clock, P.M., and it was also decided, from the character of the hemorrhage, which seemed to flow from some vessel *within the bladder*, that, in case of the alum failing to arrest it, at the afternoon visit an injection of infusion of matico should be tried. 5½ P.M., no decrease of hemorrhage. The catheter was introduced by Dr. Hobart, and about 8 ounces of tepid water first injected, owing to the irritation and urgent desire to pass, of which the patient complained, the catheter was withdrawn, as it seemed to be blocked up by blood clot, and after a little, a portion of the water injected passed off, and in a short time some more, accompanied by heavy clots. After a short delay the instrument was again introduced, and 10 ounces of the matico infusion, at a low temperature, were injected, when again the same urgent desire to empty the bladder recurred, and the catheter was withdrawn. About 4 ounces of the infusion were passed off, with scarcely a tinge of blood; and, recommending the patient to retain the remainder as long as possible, we left him at 6½ o'clock, having ordered 3 grains of acetate of lead, with 10 drops of tincture of opium, to be given every second hour for three doses, and to be afterwards repeated every third hour. I should here state that for the four days his pulse continued at or under 80; tongue clean; no pain on pressure over the hypogastrium, although it caused desire to empty the bladder; bowels had been relieved by castor-oil and enemata, and sleep procured by an anodyne each night. He, of course, complained of great prostration, as up to this period the loss of blood was considerable.

"Thursday morning. The acetate of lead mixture has been regularly taken; had some quiet sleep (four hours) last night; desire to empty the bladder not so frequent. The quantity throughout the night and morning, up to my visit (10½),—Drs. Townsend and Hobart being unable to meet me,—not so copious, but still bearing evidence of increased hemorrhage, with heavy coagula. 3½ P.M. Dr. Hobart and I visited the patient, and, finding the acetate of lead mixture ineffective, determined on again trying the injection of the matico infusion. The introduction of the catheter caused him to complain a good deal, but evidently more from apprehension than from absolute suffering, and his fears caused much spasm of the whole of the perineal muscles, so that, notwithstanding great gentleness and patience in the introduction of the instrument, he could not bear more than two ounces of the infusion to be injected, which caused such urgency to empty the viscus, that it only remained a few minutes; when passed off, the hemorrhagic tendency was the same, and the fluid was again accompanied by heavy clots. The patient

begged to be spared the further application of the local remedy for the present, to which Dr. Hobart and I assented, until Dr. Townsend again met us.

"8 o'clock, P.M. Dr. Townsend and myself met; found the quantity of urine passed considerable, and evidently less bloody, the greater portion having been passed about twenty minutes before our visit. After consultation, and having decided on persevering in the acetate of lead mixture every second instead of every third hour, on returning to the patient's room, we found two ounces of the mixture remaining, which we at once gave him ($8\frac{1}{2}$), and directed that ounce doses should henceforward be administered every second hour, begining at $11\frac{1}{2}$, the patient to be supported by beef and linseed tea, and barley-water acidulated with lemon-juice.

"Friday morning, 11 o'clock. Patient has had a good night; the bladder emptied only thrice throughout the night; hemorrhage and coagula still considerable. We agreed to inject an ounce of Ruspini's styptic, diluted with three ounces of water, which was carried into effect, and to persevere in the acetate of lead mixture.

"8 o'clock, P.M. Had retained the injection of Ruspini's styptic three hours, and, when passed, the discharge was less tinged with blood; no clot followed; however, the coagula were subsequently abundant. While we were at his bedside, he emptied the bladder, the fluid deeply tinged, but *without clot;* pulse 80, soft; injected the remaining portion of the bottle of Ruspini, not quite an ounce, with three ounces of infusion of matico; suspended the use of the acetate of lead, having taken 46 grains of the salt; substituted 4 grains of gallic acid, with half a grain of opium, in form of pills, to be taken every second hour.

"Saturday morning, 11 o'clock. Matters altogether aggravated, the discharge from bladder consisting almost entirely of blood; only three pills of gallic acid and opium have been taken. Ten minutes previous to our arrival, had a severe rigor, and not yet subsided, accompanied by great depression, small, weak, and frequent pulse. Countenance pinched, lips exsanguine, all foreboding the worst. Administered brandy and water, and directed 10 drops of tincture of muriate of iron every hour.

"$1\frac{1}{2}$ o'clock, P.M. Since last visit nausea and vomiting occurred, and the whole contents of the stomach were ejected; had only taken one dose of the tincture.

"8 o'clock, P.M. No improvement, except that the rigor having subsided, there was some reaction in the pulse; bleeding still copious, with heavy clots. Directed three draughts, each containing 1 drachm of sulphate of alum, 1 drachm of sulphate of magnesia, and 12 drachms of infusion of roses, one to be taken every third hour. The anodyne (40 drops of tincture of opium) at bed-time.

"Sunday morning. Had vomited after the first draught, and also after the second, with much nausea; retained the third, and slept about two hours, but on the whole had rather a restless night. Considerable amount of coagulum after the night, but about an hour

before our visit he passed about two or three ounces of urine, *free from blood;* and now passed, in full stream, about four ounces, of a similar character; both these were the first, since his attack, free from clot. To drink freely of cool drinks, to have beef-tea and claret, and continue his draught in half quantity every second hour.

"Monday morning, 10½ o'clock. Spent a good night; has taken three half draughts, all trace of blood has disappeared, and there are about two pounds of urine after the night. To continue his nourishment and half draughts.

"8 o'clock, P.M. Urine still clear, and in sufficient quantity; continue half draughts, and repeat anodyne.

"Tuesday morning, 21st, 10 o'clock. Had a good night, but complains of prostration; pulse frequent, 112; tongue loaded; slight abdominal fulness, with some tenderness on pressure; feels inclined to empty bowels, but cannot. To have a simple enema, omit all medicine, and continue his beef-tea.

"5 o'clock, P.M. Dr. Townsend and I, in Dr. Hobart's absence, met, and found the patient complaining much of prostration after the effect of enema; had chewed a mutton-chop, and taken some brandy and water, which recruited him, and his pulse had fallen to 84. To have his nourishment, with anodyne; urine still free from blood.

"Wednesday morning, 10 o'clock. Has had a very tranquil night; urine natural; still complains of prostration; pulse 84; tongue rugose, but not so furred.

"Thursday morning, 10½ o'clock. Slept well; the urine passed in the night had been removed, reported abundant, and free from hemorrhage; patient irritable, but much better; pulse 80; tongue cleaning.

"Friday. Symptoms much as yesterday.

"Saturday morning. Dr. Townsend and I met; he had spent a restless night, notwithstanding his anodyne (40 drops of tincture of opium); constant desire to pass water; the passing the urine painful; urine light-coloured and flocculent; tested, but no albumen.

"Sunday morning. Dr. Hobart and I met; he spent a better night; calls to urinate not so frequent, but still accompanied by pain, especially at the glans penis; urine still flocculent; anodyne to be continued.

"Monday morning. I was absent, but Dr. Hobart reported that the patient still complained of pain in micturition; ordered infusion of buchu, with 10 drops each of diluted nitric acid and tincture of opium in a draught every fourth hour.

"Tuesday morning. Micturition still painful, and in the urine passed throughout the night there is a deposit, a portion of which is evidently purulent, but in small quantity. Pulse 84, soft. To continue his draughts, and repeat the enema.

"Wednesday morning. Spent a good night, and had some hours' tranquil sleep; less pain in the night, but toward morning pain recurred. In a considerable amount of urine passed for the night

there was a deposit of about a tablespoonful of apparently half mucus, half pus, but so intermixed that it was impossible to judge the quantity of either. While at his bedside he expressed a desire to make water, but was requested, if possible, to retain the contents of the bladder as long as he could. He was ordered in addition one ounce of laudanum.

"Thursday morning, May 1st. Spent a 'delightful' night; pain considerably less; urine clearer; the flocculi at bottom of vessel radiated and light. On decanting it, a wineglassful of flocculent fluid remained, which was left to settle, the same having been done with two ounces yesterday, and which latter to-day presented a thickish, white deposit. He had drank freely throughout yesterday and last night. To continue his draughts and mild nourishment.

"8 o'clock, P. M. Spent an uncomfortable day from pain after each time of making water. Deposit of muco-purulent matter still considerable; milky and granular in appearance; laid by that deposited throughout the day and night, having decanted the fluid portion. To add to his last draught to-night twenty drops of tincture of opium, and repeat anodyne enema also.

"Friday morning, 10 o'clock, May 2nd. Urine in large quantity; had a 'delicious' night; less pain than before up to the hour of visit. The quantity of deposit still large, and of the same character. Omit infusion, and continue acid and tincture of opium every fourth hour. Continue support; repeat anodyne enema.

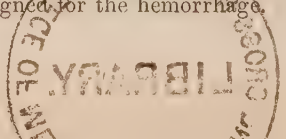
"Saturday morning. Spent rather an unquiet night, but had only awoke on our entering the room, after three hours' tranquil sleep; and then passed urine, the first for some days which could be said to be strictly 'urinous.' The quantity throughout the night less than for some nights, but still abundant, and not containing half the quantity of deposit of that passed yesterday; still pain after micturition, but of shorter duration. Had taken, since yesterday morning, seventy-five drops of tincture of opium.

"Sunday morning. Although disturbed more frequently in the night, and the quantity of urine superabundant, still, he had less pain after passing it, and the deposit is greatly lessened, beside being more diffused and diffusible in the watery portion. Pulse tranquil, 72; countenance improved. To continue his draught every eighth hour; bowels to be relieved by an enema.

"Monday morning. Enema acted well, bringing away a large feculent evacuation. Spent a quiet night; complains of nausea since taking his draught this morning; urine less in quantity, but sufficient; deposit much less than for some days.

"From this period daily reports were considered unnecessary, as, with the exception of debility and disinclination to solid food, there was nothing particular in the case. However, some days subsequently, the patient stated that the urine was in small quantity, unless he took a large amount of fluid into the stomach.

"This case is altogether an interesting one. From the first, no cause could be assigned for the hemorrhage. He had been laid by



for several days suffering from paronychia and a threatening of anthrax on the nape of the neck, and, consequently, could not have undergone any fatigue. He had met with no injury which could account for the symptom. Besides, throughout his life, he never had any tendency to disease of the urinary organs, or any evidence of calculus. He has (and has had for many years) a large hydrocele, which he could never be induced to have tapped, and the radical cure attempted. He depended on acupuncture of the sac, which I repeatedly performed for him, and which in three or four days promoted absorption of the effused fluid, and relieved him of the scrotal weight for some months each time after the operation. The quantity of blood lost was very considerable, as my colleagues can testify; as far as we could compute, it must have exceeded ten or eleven pounds. That the hemorrhage proceeded from a bloodvessel in the bladder, or near its neck, we all agreed, from the rapidity of its accumulation. It was fortunate that the interruption to the flow per urethram was short, as the clots, while in the act of emptying the viscus, came away freely. On the Saturday, when the rigor set in, we much feared that a coagulum was forming in the bladder, and from the exsanguine and depressed state of countenance, and the perturbed circulation, convulsion was apprehended. It is a matter for consideration in this case, whether, where such varied astringent remedies were tried perseveringly, the arrest of hemorrhage was due to any, or all combined. It seemed to be agreed on by all that the nausea and vomiting, which occurred subsequently to the patient's having taken the sulphate of alum and sulphate of magnesia draughts, may have had much to do in stopping the bleeding. I would only further remark, that gallic acid, so generally lauded as a styptic, completely failed in this case."

Case of Peritonitis. By Dr. Cummins.—"Private John Molony, aged 22, of scrofulous diathesis, tall and spare habit, with light hair and eyes, was admitted into hospital, under my care, on the 9th of January, complaining of pain in the calf of the left leg which incapacitated him from the duty of marching; there is no accompanying tenderness on pressure, redness, or swelling. He states that some months since he was in hospital at Queenstown for some chronic affection, but has enjoyed tolerable health ever since.

"Rest in bed, and a stimulating liniment, removed the pain in a few days, and I was about to discharge him, when he directed my attention to a swelling of the abdomen, which had troubled him for the last few days. On examination I found it considerably enlarged, and tympanitic, but not in the least tender under the roughest pressure. Pulse rather quick and weak; appetite bad. Tongue appears normal, but on closer examination I find that its centre is marked by a narrow streak, which appears red and dry; there is no unusual thirst, and he does not complain of nausea. I ordered an oil draught, a turpentine enema, and turpentinate fomentations to the abdomen.

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"14th. The remedies of yesterday caused copious discharges from the bowels, accompanied by much flatus; but the abdomen is as large as ever this morning. I ordered hydrargyrum cum creta and rhubarb, in small doses, three times a day.

"20th. Much flatus has been passed with all the stools since, but accumulates as rapidly as it is discharged. He has since continued in much the same state, except that his tongue has resumed a perfectly natural appearance, and that the pulse is perfectly normal. The appetite is now good, and the tympanitis is the only source of discomfort. To omit the powders, and to take one-twelfth of a grain of strychnia three times a day.

"23rd. The tympanitis is unchanged, and he does not think the strychnia agrees with him; I consequently omitted it.

"25th. He has been up, and apparently enjoying good health ever since. The appetite is excellent, and there is some little improvement in the size of the belly. This morning, for the first time, he has had some vomiting; he also complains of thirst; but his tongue is natural, and the pulse affords no indication of disease. Bowels have been regular all along. I directed that a mustard cataplasm should be applied over the epigastrium.

"26th. Has had some severe fits of vomiting since, and complains greatly of thirst. His tongue is red and dry in the centre, and slightly furred round the edges. The pulse, though weak, is not quick. The belly is more swollen than ever, but still is perfectly insensible to pain on pressure.

"I ordered a blister over the upper half of the abdomen, to be dressed with mercurial ointment, effervescing draughts in small quantity, and blue-pill, with Dover's powder, three times a day.

"It is now about sixteen days since the tumefaction of the abdomen was first noticed, and up to yesterday, with the exception of the almost imperceptible abnormal appearance of the tongue, and the trifling increase in the frequency of the pulse, which I noted on the 13th, and which disappeared next day, there had been no indication of serious disease; indeed, at first I regarded the swelling as merely a result of some temporary gastro-intestinal irritation, and afterwards, when it persisted during so many days without being attended with the smallest derangement of the general health,—the tympanitic resonance at the same time being uniform over the abdomen, and unaltered by change of posture—not knowing how else to account for it, I thought it might present some analogy to the tympanitis which is occasionally met with in hysterical girls, and which so frequently yields to nux vomica. With this view, I prescribed strychnia, as we have seen, without success. But now the symptoms are becoming more alarming; the state of the tongue, the vomiting, and the excessive thirst, supervening on the tumefaction of the abdomen, are decided evidences of abdominal inflammation, and are sufficient to establish this diagnosis, *notwithstanding the absence of pain, tenderness, and rapidity of pulse.*

"29th. The vomiting and other symptoms continue much the

same as at last report. There is still neither pain nor tenderness. The patient is weak and is emaciating; countenance exhibits a peculiar sunken and languid appearance; urine deposits a copious yellow sediment on cooling. I ordered draughts of hydrocyanic acid, and the pills to be continued.

"February 4th. The draughts had only a temporary effect in checking the vomiting, which still comes on after taking any kind of food, and is very distressing. The swelling of the abdomen has almost entirely subsided, and it now communicates a soft, doughy sensation when pressed, and is dull on percussion over several points, but there is no pain or tenderness, and no tumour can be discerned. I have since endeavoured to check the vomiting by various remedies, but without success. Tongue still red and dry; the teeth present a peculiarly dry, bony appearance, as if their dentine had been absorbed; there is some disposition to sordes on the lips. The pulse has now become rapid and weak. The bowels are regularly and naturally opened, and have been so *during his entire illness.* Patient sleeps remarkably well at night. Emaciation is progressing rapidly—the jaws are lengthened, and the eyes are deeply sunken in the orbits. Continue the pills, and apply another blister over the entire abdomen, to be dressed with blue ointment, as before.

"6th. No kind of food can be retained for a moment in the stomach. There is distinct gurgling heard on pressure over any part of the abdomen. The urine always deposits copiously on cooling. The gums are somewhat spongy, and the breath has a slight mercurial fetor. Omit the pills; I ordered him an exclusive diet of milk and lime-water, in equal parts.

"18th. The diet of milk and lime-water agreed with him for a few days, but he then refused to continue it, and it was replaced by strong animal broths, in small quantity, at short intervals, which did not always cause vomiting. I also permitted him to have porter, which he is always able to retain on the stomach. He seems, on the whole, a little better, but emaciation is extreme. No diaphoresis, or other sign of hectic, accompanies the loss of flesh. I ordered a tablespoonful of cod-liver oil three times a day, and constant friction of the same over the abdomen.

"24th. The stomach tolerated the oil, but during the last few days it has caused some diarrhœa. He complains of pain and smarting on passing water, and also of pain in the ears, from which there is a purulent discharge. I fear he is losing ground. Omit the oil; continue the frictions.

"March 1st. A bedsore has formed, and he is sinking rapidly.

"5th. He died quietly at 5½ o'clock P.M.

"*Autopsy.*—Extreme emaciation; I have seldom seen it so great after the most wasting phthisis; abdomen, natural size; chest nearly clear on percussion. On opening the abdomen I discovered that the small and large intestines are glued together by old lymph into one inseparable mass, and that large quantities of more recent lymph are to be found on its surface, as well as on the parietal peri-

toneum. The cause of the inflammation which gave rise to these exudations is to be found thickly scattered over the entire serous membrane, in the shape of miliary tubercular bodies, about the size of split peas, or rather smaller; their texture is that of hard cheese; their colour is yellow; I cannot find one in the abdomen larger than a pea, few so large. The mesenteric glands, such as I am able to examine, appear healthy. The liver, kidneys, and other abdominal organs, are, as far as I can judge, quite free from disease. The omentum is nearly an inch thick, and is covered with the tubercles.

"The gastro-intestinal mucous membrane is unaffected with disease, at least as far as the intestinal can be examined, which is only on the surface of the mass into which these viscera have been agglutinated, for no force will separate the convolutions from each other. There are three or four small abscesses on the surface of the apex of left lung, which are filled with pus, and do not, as far as I can discover, communicate with the bronchi. Numerous tumours, about the size of a small pistol-bullet, rather hard, with a light yellow appearance on section, are scattered throughout the subpleural cellular tissue of both lungs, but the pleura covering them is glistening; indeed, not a trace of inflammatory exudation, old or recent, is to be found on either pleura, notwithstanding the disease which lies beneath the membrane on both sides. The interior of both lungs is quite healthy.

"There are several points of interest connected with this case, and first its latency. Dr. Armstrong brought the subject of latent peritonitis before the Society last session, and illustrated his remarks by an interesting case which had fallen under his observation; but in that case the pulse was 'hard and wiry;' serous effusion had taken place into the abdomen; the tongue was furred and red, and some degree of pain existed. Here, however, we had during the first fortnight not one of these symptoms to guide us,—our only diagnostic point being an enlargement of the abdomen, unaccompanied by any other symptom of disease; and the most careful and repeated examination failed to detect any effusion into the cavity of the peritoneum, or any pain or soreness of the affected part. The post-mortem examination places it beyond doubt that the tympanitis was the result of peritonitis, and thus the clinical fact becomes established, that persistent tympanitis, which cannot be attributed to ordinary causes, is *alone* sufficient to afford a strong presumption of the existence of peritonitis.

"The excessive thirst and vomiting which commenced on the fifteenth or sixteenth day indicate that the inflammation had spread to the serous membrane of the stomach, and so intense were these symptoms that they could scarcely have been greater if the mucous membrance itself had been the part affected.

"I do not think inflammation of the peritoneal coat of the stomach has been enumerated amongst the causes of chronic vomiting, but this case proves that it may be one of its worst and least easily remedied

causes. It was the constant vomiting which produced the emaciation which was the immediate cause of this patient's death; and it is worthy of remark, that wasting thus produced by non-nutrition, differs from that dependent on suppuration, or excessive discharge of any kind, in not being attended with diaphoresis or other sign of hectic; at least, as far as we can judge from this one case.

"It seems almost impossible that the fæces could have passed through such a tangled and intricate channel as the intestinal tube presented, and which, from the firmness of the adhesions, must have existed for some time; and yet we find that nature was equal to the task of throwing off its *effete* matter, even under such difficulties, as the bowels were naturally and regularly opened until the last few days of life, when diarrhœa set in.

"I intended to have had the tubercular matter which the autopsy revealed, scattered in such abundance throughout the peritoneum, examined under the microscope, but being very much occupied at the time, I was unable.

"I presume they were scrofulous, but I must admit that, had the man been a little older, I should strongly suspect their cancerous origin, for the following reasons:—

"1st. They did not affect the glands or other organs of the abdomen.

"2nd. The substance of the lungs was healthy, while the subpleural cellular tissue contained tubercles.

"3rd. They were not attended with hectic.

"Before I conclude, there is one other point I think worthy of notice,—was the peritonitis in this case the result of metastasis from the painful calf of the leg? I think not; for although instances have occurred of metastasis from rheumatic joints to the peritoneum, the tubercular granules could hardly have been thus produced. Some, indeed, of these little bodies must have been secondary to the inflammation, as they were found on the false membranes; but most of them were on the peritoneum itself, and could not have been a result of inflammation. Besides, the subpleural tubercles were certainly independent of inflammation, and thus indicate the improbability of rheumatic inflammation having been the first lesion of the peritoneum."

A Case of Jaundice, with incipient Hepatic Disease. By Dr. Finn.—Anne Sarsfield, aged 30, was admitted into the North Infirmary on the 22nd August, 1855, labouring under well-marked jaundice, which appeared a few days previously, and which she attributed to exposure to cold. She also complained of subacute pain, referred to the right hypochondrium; this pain occurred at irregular intervals during her illness. Her appetite was much impaired; tongue coated; habitual constipation; and the alvine dejections, as well as the renal secretion, presented uniformly the appearances characteristic of jaundice. The frequent recurrence of pain in the right hypochondrium suggested the probability that this symptom had

its origin in the passage of gall-stone; but this view was not confirmed by a careful and frequent examination of the alvine dejections; no trace of gall-stone having been discovered. Various medicines (mercury, to moderate ptyalism, included) having been exhibited in succession, no improvement of the symptoms was observed to have taken place on the third month of treatment. In December the jaundice increased, and the other symptoms experienced a corresponding aggravation. Pressure in the region of the liver occasioned much pain, and manual examination of this organ detected on its anterior surface an inequality not previously observed. This assemblage of symptoms implied that functional derangement, having passed through its various phases, had reached the limit at which organic change commences. Despairing of relief, the subject of this case now expressed a desire to leave the hospital, but was induced to remain some time longer. On the 4th January, muriate of ammonia was administered internally, and its use was persevered in till nearly the close of the month. In a week after the administration of this medicine, some amendment was observed; this gradually progressed, and before the 20th of the month the jaundice with the concomitant derangement of the hepatic and renal secretions had almost totally disappeared. On the 1st February not a trace of jaundice remained, and she was dismissed from the hospital, cured.

Comparatively little importance is attached to muriate of ammonia in the British Islands, apart from its topical uses; but the experience of Continental physicians, if based on a due appreciation of its properties, would recommend it to favourable notice as an internal remedial agent, of great value in a variety of diseases in which it may be desirable to produce effects analogous to those of mercury[a], without the inconvenience so frequently attendant on the use of the latter metal.

The circumstance of an interval of two months having elapsed since the administration of mercury, would appear to vindicate for the muriate of ammonia the exclusive merit associated with the successful termination of this case. In arriving, however, at a conclusion embracing all the circumstances of this case as they presented themselves, the early exhibition of mercury should not, perhaps, be wholly excluded from a participation in the result. This metal, from its well-known cumulative tendencies, may be presumed to have accumulated in the system; and its contact, in the organism, with the more recently administered ammoniacal salt, involved, if not new elective affinities (this conclusion not being confirmed by chemical experience), probably some mechanical re-arrangement of the molecules, resulting in the increased activity of one or of both remedial agents.

[a] In a case of pleuritis with considerable effusion, which I recently attended in conjunction with Drs. Hobart and Henry Hobart, of this city, I have seen the internal administration of muriate of ammonia, in their hands, attended with marked benefits, the persistence in the use of mercury being contra-indicated by various causes.

Case of Depressed Fracture of the Skull. By S. Henry Hobart, M. D.—Patrick Doherty, aged 30, a labourer, was admitted into the North Infirmary, March 29, 1855. He had been working at the new Terminus of the Southern and Western Railway at Cork, when a heavy pulley, with an iron hook attached to it, fell from a considerable height, and struck him on the left parietal region. There was severe hemorrhage at the time of admission, but this was easily restrained by compress and bandage.

30th. Feels no uneasiness about the head, not even soreness about the wound; complains, however, of extreme tenderness in the neighbourhood of the right sterno-clavicular articulation, the greatest degree of sensibility being directly over the joint; motion, also, of the right arm causes pain, but he is quite free from uneasiness when at rest, and that the part is not touched. On examination there appears to be no contusion, or swelling, or anything to account for the state of hyperæsthesia. Dressings not removed, for fear of return of the hemorrhage.

31st. Examined the wound of scalp to-day. There is very considerable depression of the skull, and the depressed portion appears to be large, but cannot be fully defined with the probe; the edges of the wound look red and angry; the face has a slightly drawn appearance, but not perceptibly, to one side more than another. He is able to stretch out both arms, and move both legs.

April 2nd. Wound has a sloughy appearance, but does not give much pain. Patient is quite rational; has no uneasiness about the head beyond the soreness of the wound; the tenderness about the clavicle still continues, though slightly abated.

5th. The wound has sloughed considerably, so that the injured bone is exposed to the extent of over a square inch.

7th. Wound granulating, and looking quite healthy. The depressed bone is now fully seen: there is a comminuted fracture, one large splinter being turned on its edge, so that its surface looks backwards; this is at the anterior part of the depression, which is the deepest, and can scarcely be less than half an inch; at the posterior part the depression is about a quarter of an inch. Patient feels no uneasiness whatever about the head, and seems to regard the accident as a mere trifle, though frequently told of the danger he is in. To continue on low diet; simple dressing to the wound.

10th. The face appears to be slightly drawn to the right side. On questioning him as to whether he feels any weakness about the right arm or leg, he states that the arm is now much stronger, but that it had been weak since the accident; this he had never mentioned before, though he was distinctly asked whether he could move it, and was desired to stretch it out, which he did without any apparent difficulty. Tenderness over clavicle quite gone.

12th. A portion of bone came away to-day; the pulsations of the brain are distinctly visible at the back part of the depression. Complains that the food is not sufficient, and says that he must get

more to eat; his pulse, however, is full, and face florid. To be kept on low diet.

16th. More bone came away to-day.

20th. A good many small pieces of bone have since come away, and the entire surface is covered with granulations, but there is evidently some dead bone not yet detached. Says if he does not get more food he must go out.

21st. Left the hospital without leave, but attended afterwards as an extern.

25th. The perpendicular bit of bone has all come away, but only the outer table of the horizontal portion, the inner table remains depressed, and is covered with granulations. Considerable weakness of the right thumb still remains.

May 1st. Wound quite healed, but the cicatrix is very much depressed over the fracture; thumb still rather weak; face slightly drawn to right side; in other respects quite well.

Perhaps the time when this case would be of real practical interest has, in a great measure, gone by, for surgeons do not now trephine men's skulls in the unceremonious manner they used formerly; still, I think it is a case that might tempt one to interfere, and is a good example of how great an amount of depression of the skull may be tolerated by the brain; and, moreover, we see that, though symptoms of compression did exist to some extent (for to this must be attributed the weakness of the right arm which I have mentioned) they almost entirely passed off, even without the depressed bone coming away. It may, therefore, be taken as a proof that not only should we not trephine when no symptoms of compression exist, but that, unless those symptoms are decidedly urgent, we had better leave to nature the removal of the depressed bone.

There is a case reported by Dr. Williams, of Mallow, in the Dublin Hospital Gazette for 1st March last, of a farmer who had received a blow of a "pitchfork" on the head, which caused a depressed fracture of the left parietal bone; there was partial loss of sensibility; face pale and anxious; respiration hurried; pulse from 45 to 50, but became accelerated on sitting up; extremities cold; pupils dilated; and there was paralysis of the right forearm; on being roused he stared wildly, spoke at first incoherently, but after a while collected his thoughts. The bowels were well cleared out with a cathartic bolus, but no attempt was made to remove the depressed bone.

He gradually recovered his senses, and in the course of about a fortnight he was able to look after his farming duties; obstinacy of the bowels being the only inconvenience under which he laboured; the wound was nearly healed, and the strength of the right arm completely restored. About four weeks after the injury, Dr. Williams was again sent for, and found that the granulations were absorbed, and the ulcer very unhealthy, with a copious discharge of fetid pus; a large piece of bone, which was quite detached, was then

removed; there still remained, however, a portion of the inner table, not yet detached, at some distance from the fissure in the skull; this did not come away for nearly twelve months, during which time he suffered but slight inconvenience, and after which the wound healed perfectly, and the patient recovered his usual health. Here again was another case in which the patient laboured under very decided symptoms of compression, and yet, without the depressed bone being removed, all those symptoms gradually passed off. The portion of the inner table, which gave so much trouble, was at a distance of several inches from the wound, being situated at a point just behind the ear, which never could have been suspected by a surgeon using a trephine until he had first removed the portion of bone which was manifestly depressed; and then (unless he thought fit again to apply the trephine over the site of the detached portion of the inner table), the case would have run just as tedious a course as it did under Dr. Williams' plan of treatment.

Pneumonia of the upper Lobe of the left Lung; Cure; Intermittent Fever four months afterwards; Albuminuria; subsequent attack of Typhus Fever and secondary Inflammation of the lower Lobe of the same Lung.—Dr. Popham exhibited morbid specimens of the heart, lungs, and spleen, in the following case:—

"Ellen Keefe, aged 38, was admitted into the Workhouse Hospital in July 1855, with pneumonia confined to the upper third of the left lung. A loud bellows murmur was audible in the left subclavian artery, with increased pulsation, neither of which could be detected in the right. Considerable dulness extended from the left clavicle to the mamma. Diminished mobility and absence of respiration existed over the same parts. Intense bronchophony was heard below the left clavicle, and for some distance downwards; there was slight sanguineous expectoration, with cough and some pain. The pulse was 104, regular; the second sound of the heart was prolonged, and the emphasis on it so distinct as to give an apparent resemblance to the word 'abrupt.' She lay chiefly on the right side, decubitus on the left causing pain and dyspnœa. That pungent heat of the surface so remarkable in pneumonia existed along the back in a marked degree. Under the treatment pursued the pneumonia was subdued, a slight amount of dulness being the only morbid sign remaining after recovery; the natural respiration over the affected part of the lung was fully restored.

"In the month of December following, she was admitted to hospital with a severe attack of tertian ague. This illness lasted about three weeks, but was completely removed by sulphate of quina; while taking this medicine she frequently complained of pain in the left temple and hypochondrium; the former pain yielded to nothing but the application of a few leeches.

"Four months after the last attack she was again admitted to hospital with symptoms of continued fever. The headach was now intense, especially over the left temple. She complained of pain

beneath the left mamma and hypochondrium. She had much bilious derangement, nausea, foul tongue, and slight jaundice; the urine, which had been for some time albuminous, depositing the urates in quantity; her breathing was suspirious; decubitus only possible on the back; countenance heavy; dulness and absence of respiration were found in the lower half of left lung; in the upper half, previously engaged, the respiration was natural. The symptoms of pneumonia were mostly absent, neither cough nor sanguineous expectoration existing.

"The cerebral symptoms each day continued to increase, viz., loss of consciousness, dilated pupils, stupor, &c.; the power of deglutition totally ceased three days before her death; though petechiæ were carefully sought for, none could be found; tympanitis of the belly was a troublesome symptom at the close. The pulse all through continued about 96 to 100; the sounds of the heart were barely audible.

"On a post-mortem examination the right lung was found enlarged, and did not collapse; it was otherwise healthy. I was desirous to see the state of the upper part of the left lung, which had been formerly attacked with inflammation. It had contracted such adhesions to the margin of the sternum and the costal walls that no degree of force could detach it, so that it was obliged to be cut out; the lower part of the same lung adhered, but the adhesions were recent, and allowed separation. The upper part was of a steel-grayish colour, tough, and much more fleshy than the lung feels when healthy; there was not the hardness usually found in chronic pneumonia, but it wanted the crisp, crepitating feel of lung uninjured by disease.

"The lower portion was hepatized, easily lacerable, gorged with deep purple blood, and sinking in water; the bulk of the whole viscus was considerably diminished. The heart was normal in size, without a trace of pericardial adhesion; the muscular tissue was much softened, especially the right ventricle, which was easily perforated; the walls of this cavity were pale, and their muscular structure evidently imperfectly nourished; polypi were found in all the chambers, so closely attached to the cavities of the heart as to give moulds of them; the valves were not engaged.

"In the abdomen the stomach and intestines were enormously distended, but their mucous surface was pale, and showed few traces of vascularity. The glands of Peyer were not altered; the liver was large, but of ordinary appearance; the spleen was greatly enlarged, its tissue dark red, much softened, and full of thick, purulent-looking blood.

"Both the kidneys were small and hard, and had the gray cortical margin of Bright's disease.

"The head showed the sinuses loaded with dark blood, and an unusual amount of fluid under the arachnoid membrane.

"*Remarks.*—The preceding case afforded an opportunity of examining the state of the lung after recovery from previous inflamma-

tion, and that of the spleen after ague. It presented rather a curious sequence of disease, viz., pneumonia confined to the upper portion of the left lung, intermittent fever, albuminuria, typhus fever, and secondary inflammation of the complemental portion of the same lung, as if the original pulmonary inflammation had exercised a protective influence over the upper part. It is a fact as yet unexplained, why in certain epidemics of pneumonia the upper lobes are attacked, and the lower escape, whereas in sporadic cases the reverse is the rule. It would almost appear as if the affinity for contracting disease is different in the several parts of the lungs,—that one species of atmospheric influence takes more effect upon one portion, while to the ordinary atmospheric agency the other portion is more amenable. There are probably features of difference between the two varieties which a close examination might detect. In the above case the pulsation of the left subclavian, with the soft bellows murmur, was remarkable, and probably arose from the same cause as in incipient tubercle of the apex of the lung, either from vascular irritation, or the effects of pressure. Probably a similar influence was exerted over the heart by the vicinity of the neighbouring inflamed lung, as the change in the second sound of that organ was not persistent, after the inflammation of the upper lobe was cured. With respect to one of the physical signs, viz., the loudness of the voice, this was as great as in any case of cavity which I ever heard.

"I am unable to trace any connexion between the intermittent fever and the previous pneumonia of the upper lobes; but a more obvious result might be suspected between splenic disease and pneumonia of the base of the left lung. As we have hepatic pneumonia where the liver and right lung are simultaneously or consecutively affected, so we might have splenic pneumonia, or pneumonic splenitis, according as the progress of disease takes place from the spleen to the neighbouring lung, or in the reverse direction. I think I have witnessed cases of each variety.

"The connexion of pneumonia with typhus fever has been long noticed, but it has been denied, on strong grounds, that this combination presents any *specific* characters. In the above case the patient, a little after the first attack of pneumonia, became liable to headach, and this symptom continued slowly to increase until delirium and other indubitable signs of cerebral disorder manifested themselves. I have noticed this tendency to cerebral disturbance in several cases of disease of the upper lobes; in one remarkable case, epilepsy followed. I am inclined to think that this result is more usually met with in disease of the upper lobes of the left than of the right lung; whether this be the case, and also whether epidemic pneumonia is more frequently found to attack the left than the right, contrary to the habits of the ordinary sporadic form, future extended observation must decide."

Cases in Operative Surgery. By Thomas H. Babington, M. B., Surgeon to the County Londonderry Infirmary.

I.—*Strangulated Femoral Hernia, with intermittent pulse; Operation; Recovery.*—Lucy Long, aged 35, mother of five children, has had femoral hernia on the right side for several years, but she never wore a truss. On stepping hastily out of bed on Sunday morning, 21st November, the tumour appeared in the groin, and she was unable to return it as on former occasions. She was admitted into hospital at 2 o'clock P.M. on Monday. 22nd. Complaining of considerable pain in the abdomen, and incessant vomiting of everything taken into the stomach; a small tumour, exceedingly hard and tense, and very tender to the touch, was situated in the right femoral space, about the size of half a hen's egg, and curving up over Poupart's ligament.

The gentleman who sent her to hospital observed a remarkable intermission in her pulse; this continued after her admission, and was found to occur at every third beat.

The tumour being so tense and tender, and other symptoms urgent, the operation was at once proceeded with, thirty-two hours after strangulation. The sac was opened, and a tense, highly vascular knuckle of intestine, covered with omentum, found contained therein; all were returned into the abdomen. The stricture was exceedingly tight, and was only fully relieved by the division of Poupart's ligament, cutting directly upwards; within one hour after the operation, the pulse became regular, and the intermission disappeared.

The patient was ordered one grain of opium every third hour. Her bowels were moved within twenty-four hours after the operation, and she recovered without an unfavourable symptom.

II.—*Two Hernial Tumours on the same side; One, direct Inguinal, strangulated; the other, Femoral, reducible.*—Fanny Curran, aged 66, admitted 19th January; hernia strangulated for six days; has not had any treatment; there is great tenderness of the abdomen, attended with stercoraceous vomiting. The tumour is of a doughy consistence, and, on being handled, a gurgling sensation is communicated, as if a portion of intestine or its contents returned into the abdomen, but this without any diminution of the size of the tumour.

The operation was at once resorted to. The stricture was exceedingly tight and tense, and was with difficulty divided by passing the knife along a blunt, flat, grooved director; the sac contained a portion of intestine, tense and very dark-coloured, but of firm consistence, covered with omentum; all were returned into the abdomen.

The hernia was a direct inguinal, and, on returning the contents of the sac, the cause of the gurgling was acertained; there was situ-

ated at the same side a reducible femoral hernia contained in its own separate sac.

This case proceeded most favourably as far as the result of the operation was concerned, but the patient died ten days after from an attack of bronchitis.

III.—*Strangulated Inguinal Hernia; Operation; Gangrenous Intestine; Artificial Anus; Recovery.*—John Browne, aged 70, admitted to hospital 22nd March, with an inguinal hernia on the right side, which was strangulated from Monday, 17th; has had no treatment; has vomited everything he swallowed; no evacuation from bowels; pulse 112, very small and weak. Considerable tenderness of abdomen; hernial tumour small, tense, very tender; cannot bear any handling.

Operation performed immediately; the coverings of the sac were found to be very tense and much thickened, the sac itself exceedingly thickened, fully $\frac{1}{16}$th of an inch thick. The sac contained only intestine (without any fluid), almost adherent to the walls; it was black, soft, and gangrenous, and burst immediately on the sac being opened, the fluid contents of the intestine immediately escaped.

The intestine was freely laid open along with the sac, the parts covered with a poultice, and the patient placed in bed, in a most unpromising condition.

On the following morning, the 23rd, there was a free escape of feculent matter from the wound; he had slept a little; there was less abdominal tenderness; vomiting had ceased; he was ordered five grains of compound soap pill with opium every sixth hour.

24th, 25th, 26th, 27th. Feculent matter escaping freely from the wound in the groin. No urgent constitutional symptoms.

On the morning of April 6th he had a natural evacuation per anum.

10th. Bowels open daily per anum; no feculent matter escaping from the groin.

23rd. Wound in the groin perfectly healed; bowels regular; general health good.

IV.—*Aneurism at the bend of the Arm, following Venesection; Ligature of Brachial Artery; Recovery.*—Joseph Browne, aged 52, admitted into County Infirmary 7th of May, states that he had an attack of pleurisy, for which he was bled in the right arm by a blacksmith on Sunday, the 30th March, and again in the left arm on the following day. He had observed a considerable swelling, of a dark colour, about the size of a hen's egg, in the situation of the wound in the right arm, for which the blacksmith desired him to apply a poultice of stirabout, which he did. Three weeks after, he began to use the arm, and in two days sowed several acres with flax-seed. He afterwards found this arm painful, and sought for medical advice.

There is situated at the bend of his right arm, in the course of

the median vein, and over the artery, a pulsating tumour of considerable size, the pulsation visible to the eye; and, on applying the stethoscope, there is a distinct aneurismal whir or whiz at once detected. The tumour appears pretty firm, as if partially filled with fibrin. On firmly compressing the brachial artery against the humerus, above the bend of the arm, all circulation in the tumour stops; the pulsation ceases; no sounds are detected by the stethoscope, and the swelling is diminished in size.

I wished to treat the case by compression; the patient informed me his arm had already been tightly bandaged, and that he would not submit to pressure over the artery. Finding that compression of the artery above the bend of the arm effectually checked all circulation through the tumour, I determined to tie the artery in that situation "in the triangular space formed externally by the biceps muscle, internally by the pronator teres, and posteriorly by the brachialis anticus"[a].

On May 12th I tied the artery in this space; one ligature was applied; the aneurismal tumor was not opened or interfered with. Immediately on the ligature being tightened, all pulsation in the tumour ceased, nor could the radial artery be felt at the wrist. The patient complained of considerable pain in his arm, hand, and fingers, and said they felt heavy, and as if asleep; the arm was rolled in flannel.

May 13th. Slept well; no pain of any consequence; no pulsation in the tumour; small and indistinct pulsation can be detected in the radial artery at the wrist; temperature two degrees lower than that of the opposite hand.

It is needless to give a daily report of this case. There was no return of pulsation in the tumour. On the 22nd, the tenth day from the operation, the ligature was found lying separated in the wound.

26th. Discharged; the wound perfectly healed.

June 25th. The patient called on me this day to show me his arm. The tumour is nearly all absorbed; it is now about the size of a small marble; he has perfect use of his arm, and has no pain or uneasiness of any kind.

[a] Hargrave's Operative Surgery, p. 18.

Observations on the Antrum Pylori in Man. By Prof. A. Retzius.

Many writers on anatomy, in the description of the human stomach, comprehend, under the denomination 'antrum pylori' (Pförtner Höhle, cul-de-sac pylorique), a portion of the viscus adjoining the pylorus; many do not mention this part; and others allude to it in a very cursory manner. I had been long engaged in dissections of the human body, without paying any special attention to it. Subsequently I found, in examining the stomach in animals considered to have a single stomach, that the pyloric portion constituted a perfectly distinct part, and that in most vertebrate animals it has a peculiar structure, different from that of the rest of the organ. Many years ago I investigated and described, in the "Transactions of the Royal Academy of Sciences" (K. Vet. Acad. Handl.) for 1839, the structure of the stomach in some herbivorous Rodentia; subsequently I have likewise in man, time after time, discovered certain almost regular ampullæ in this region, as well as, in many cases, a well-defined division, which I had no reason to regard as a morbid formation. The denomination 'antrum pylori' appeared to me to indicate that its origin was based on observations resembling my own, and I therefore endeavoured to trace the source of the name. I then found that Cruveilhier ("Traité d'Anatomie descr." t. iii. p. 281), who took the same view of the subject as I did, attributes the term to Willis, as also that Haller ("Elementa Physiol." t. vi. lib. xix. sect. i. § 3, "Ventriculi figura") quotes the work and place where Willis employs the name. For his own part, Haller says on this subject, in the section of his work referred to:—"Non raro aliqua strictura quasi divisus (here he cites Morgagni, and brings forward several instances of stomachs divided by strictures) maxime posterius, tum paulo cis pylorum, unde tunc *antri* aliqua imago nascitur (Willis), quam aliqui clarissimi viri nimis fecerunt."

Willis' work, where the name 'antrum pylori' occurs, and where it seems to have its origin, is his "*Pharmaceutices rationalis sive diatribæ de medicamentorum operationibus in corpore humano*," &c. Cap. II.:—"*Partium intra quas medicamenta operari incipiunt, descriptio, usus et affectiones.*" The most important part, in my opinion, touching the point in question, is that in which the author speaks of the destination of the pylorus, where it is said:—"Pylori munus est, non tantum contenta affatim et simul in magna copia ad intestina transmittere (quod quidem in catharsi et diarrhœa frequenter facit), sed potius chylum satis confectum, in *sinum* suum excipere, aliquamdiu continere, et dein paulatim et per minutas portiones excernere. Enim vero hujus *Antrum longum et capax quidam in ventriculo recessus et diverticulum esse videtur*, in quod massæ chylaceæ portio magis elaborata et perfecta secedere, et inibi manere queat, donec alia crudior, et nuperius ingesta in ventriculi fundo plus digeratur," &c. We see from this, as well as from many other passages in the same work, that Willis attached much importance to this division of the stomach.

On a superficial examination, the human stomach appears to be a very simply constructed conical sac, from the form of which anatomy seems not to have much to gain. When, however, we consider the elaborate functions this sac has to perform, both in man and animals, and the numerous divisions and remarkable forms it exhibits in a great number of the latter, with many circumstances, both in health and disease, difficult of explanation, we are soon led to the conviction that very ingenious arrangements must be disposed in this apparently simple structure.

So far as I can recollect, there is not one of the modern writers who has, according to my view, described the pyloric portion of the stomach better than Cruveilhier. After having spoken of the pylorus itself, he says:—"It is in the neighbourhood of this constriction (pylorus), at about the distance of an inch, that the stomach, bending strongly on itself, forms on the side of the great curvature a very decided elbow, *coude de l'estomac*, and presents an ampulla corresponding to an internal cavity, designated by Willis by the name of antrum of the pylorus, &c. It is not unusual to see a second ampulla beside the first, and a third, but smaller, at the side of the lesser curvature, in consequence of the bend described by the stomach. These ampullæ, scarcely appreciable in a great number of subjects before insufflation, become very distinct, and even, in some subjects, very considerable, by distention," &c.

According to my experience, this part occurs principally under three forms. The first is that sketched in the description just now quoted from Cruveilhier; the second, in which the part is more elongated, is mentioned by Willis, when he says:—"Antrum longum et capax;" the third, which may be called the conical variety, is that in which both the ampullæ here referred to by Cruveilhier, and their boundaries, are little marked, while the part itself is more conical.

In the first or shorter form the part of the pylorus at the base is nearly as broad from the lesser to the greater curvature, as it is long, has two ampullæ at the lesser curve, and most frequently one at the greater, anterior to the great flexure, or *coude de l'estomac*. The first ampulla in the lesser curve is bounded at the thicker end by a deep indentation, which exactly corresponds to the great flexure just mentioned, the *coude de l'estomac*, and at the narrower end by a shallower indentation, separating it from the second ampulla, lying next to the pylorus. The ampulla in the greater curve is separated from the *coude de l'estomac* by a shallow indentation, often amounting only to a depression extending half way round; this ampulla is usually somewhat larger than the corresponding one on the lesser curve, and, like it, reaches to the proper pylorus.

The entire of this part of the stomach is usually provided with a very thick muscular coat. It is particularly the circular layer of the latter which gives the pyloric portion its predominant thickness. The external longitudinal fibres lie here almost as on the colon, collected in bands, one on the anterior, and one on the posterior

surface: these bands are not, however, as on the colon, distinctly bounded, but are only denser collections of bundles of muscular fibres, which, both anteriorly and posteriorly, become thinner, and dispersed over all the surrounding parts. This similarity to the tæniæ Valsalvæ on the colon, first observed, as it seems, by Helvetius (*sur la digestion*), gave rise to the now obsolete name, *ligamenta pylori*. Winslow also ("Exposition Anatomique de la Structure du Corps Humain") directed his attention to them, for he observes:—"Along the middle of each lateral surface of the small extremity is a tendinous or ligamentous band, three or four lines in width, and terminating at the pylorus."—*Tr. du Basventre*, § 61. He, however, considers that they lie externally to the muscular coat, in which view he is partly correct, as I shall presently endeavour to show.

Like the colon, the pyloric portion of the stomach is puckered; the ampullæ just now mentioned are formed by the shortness and strength of these longitudinal muscular fibres, resembling the pouches of the colon. As on the colon we very often see, at the sides of the longitudinal bands, the circular muscular fibres pass over the ampullæ in curves, which are closely pressed together in the two situations where the puckering takes place, but towards the bottoms of the ampullæ are further separated, according as the ampullæ are more distended.

In many cases we see these parts shining, like a smooth tendinous aponeurosis, which many authors also have remarked. I have sometimes examined this shining part, and found it composed, as Winslow mentioned, of a thin tendinous tissue in this peritoneal membrane, which is here abundantly provided with fibres of elastic tissue. This tendon-like formation, which in man is so imperfectly developed, and not unfrequently is wanting, acquires a greater importance from the fact that it is found strongly developed in many animals.

By far the thickest portion of the muscular coat is that of the extremity of the stomach bordering on the pylorus; the longitudinal fibres here again form a dense layer, evenly investing the entire part, as on the lower portion of the rectum. This small part of the stomach nearest to the pylorus constitutes, as it were, a little division in itself, and, according to my experience, is that which is least likely to be absent.

In the long form this division of the stomach looks like an intestine, and is sometimes mistaken for a part of the duodenum; in many stomachs which have been sent to me for examination it has even been cut away. It occurs most frequently in women. It has, for the most part, only one ampulla on the lesser arch, but, on the contrary, two on the greater, of which the posterior is the great flexure, separated by a more distinct indentation from the remainder of the stomach.

In the third, or conical form, the great flexure usually appears as if removed nearer to the pylorus, and the greater ampulla in the

lesser arch is small. The two other ampullæ, situated next the pylorus, are small, especially that in the lesser arch; and the little division just mentioned, situated next the pylorus, is better marked than in the two preceding forms.

In the new-born child, whose stomach is more rounded, I have not seen these ampullæ or indentations. Still even in it, the part of the antrum next the pylorus is separately developed into a short cylindrical tube of about one centimetre in length, with thick walls the thickness of which depends chiefly on a powerful, circular, muscular belt. The valve of the pylorus is less developed than is ordinarily the case in adults; the muscular coat is thickest on the side belonging to the greater arch.

In a great number of the Mammalia this part of the stomach forms, as has been already mentioned, a still more decided division than in man, as will be seen by glancing at the representation given even in Cuvier's "Lectures on Comparative Anatomy," and in Meckel's translation, illustrated by a number of figures. Of the animals which are nearest to our hand, the dog and cat tribe exhibit the part in question as a long, slender, bent cone; the horse as a peculiar, rounded, thick part; in the pig it exhibits two constant ampullæ; in the hare it has, with the ampullæ, a small, reddish, thick, very muscular part next the pylorus; in the porpoise it constitutes a proper stomach, which is by Cuvier called the third stomach. In birds it forms the remarkable muscular stomach, which occurs likewise in many lizards; traces of the same are also found in various serpents.

As to the tendon-like parts, which are comprised in the above-named 'ligamenta pylori' (Helvetius and Winslow), they occur considerably developed in a number of Mammalia, as the dog, the bear, the hare, &c.; in a great proportion of birds, especially those which live on seeds and insects, this tendinous formation is so well marked that it must be generally known; as it must be well known that this tendinous formation is found in the muscular stomach of crocodiles, and several Amphibia. Among fishes I have found it in the Siluridæ. From all this it may be inferred that the tendinous formation spoken of deserves especial attention, and must, in many cases, play an important part.

In a previous communication I have shown that cases occur in the human subject, in which the valve of the pylorus almost disappears. I have, since that communication was written, found that this valve is constantly absent in a great number of Mammalia and other vertebrate animals. On the other hand, there is in general found a broad, thick, circular, muscular formation around the greater part of the antrum pylori, which probably keeps the stomach closed throughout some extent, like the action of the circular muscles in the œsophagus and rectum.

As I have already mentioned, the duodenum, likewise, has a peculiar cavity, which probably has a special function. I have thought that this part ought to have a particular name, and have

called it *antrum*, or *atrium duodeni*. The commencement of this part of the intestine is, in fact, as well in man as in a great number of Mammalia, often separately rounded, wants the valvulæ conniventes on its inner surface, and has small villi, and large Brunnerian and Lieberkuhnian glands. In the porpoise this cavity is, as has just been mentioned, so distinct, that it has been regarded as constituting a division of the stomach.—*Hygiea*, December, 1855, p. 790.

Case of Hydrophobia, occurring forty-five days after the Bite of a Dog.
By Professor Santesson.

Emma Hällström, aged 8½, of a lively disposition, good health, and strong bodily constitution, was admitted into the surgical division of the Seraphim Hospital, in the night between the 12th and 13th of August, to be treated for a wound in the head, which she had received from a mastiff on the previous afternoon. Her mother, who accompanied her to the hospital, could not give any definite information as to the occurrence; she said, however, that she heard it stated that her daughter approached the dog's house, to read a caution which was posted up near it about the animal, and that in doing so she came too close to the dog, whereupon he rushed at her from behind, threw her with her face upon the ground, and bit and mangled her furiously, until a boy hastened to her assistance, and with difficulty dragged her senseless out of his jaws. As to the dog, she states that no particular sign of madness had been previously observed about him; but that in the forenoon of the same day he had slightly wounded a servant-girl, and that immediately after the above described unfortunate occurrence he had been killed, having first, in his rage, bitten the knife in two, which, fastened on a stick, had been directed against him.

On inspection on the 13th of August, two large, lacerated wounds, of about five inches in length, were seen at each side of the head, in the parietal region, passing from before backwards in a curved direction, that on the left being the deeper and more torn, and the skull laid bare, but otherwise uninjured, being visible at the bottom throughout its whole extent. In addition, several lesser wounds from one to two inches long, were found on different parts of the head, as well as a slight scratch immediately above the left wrist. The patient was somewhat feverish, but no other symptoms connected with the internal organs were present. She complained only of pain in the wound, and lassitude in consequence of the great loss of blood. The hair having been removed, the wounds and surrounding parts were washed, and a small artery tied; emollient poultices were continuously applied. The injured parts quickly assumed a healthy appearance, the febrile symptoms soon subsided, the strength returned in a short time, and the health continued good and undisturbed. Even in the beginning of September all the wounds were perfectly healed, with the exception of that on the left side of the

head, where, however, granulations abundantly formed, and small exfoliations of bone gradually took place. It ought to be mentioned, that there was no sign of the vesicles at each side of the frenum of the tongue, stated by some to be characteristic.

On the morning of the 26th of September the patient complained of headach, pain in the neck, and some difficulty in swallowing; she was irritable, depressed, and inclined to cry. Nothing abnormal could be discovered in the neck, and the mucous membrane of the throat was only slightly red. An aperient was administered. In the afternoon of the same day she was restless and feverish. Her restlessness increased during the following night; she got no sleep, but lay moaning and turning in her bed, or ran round the room with wild gestures, and was testy and difficult to manage. She was removed from the large to a small ward, and placed under special care.

On the 27th, similar restlessness continued, but she remained in bed. She complained of a general feeling of illness and frequent nausea, but particularly of pain in her neck, headach, and extreme difficulty in swallowing; on attempting to swallow, she feels as though she should be choked. She was attacked in starts by involuntary convulsive agitations of the head and extremities, as in a severe paroxysm of ague, increased when she was frightened, or when a drinking vessel, from which she turned away with evident aversion, was offered to her. The muscles of the neck, especially the more deeply seated, were extremely rigid. Her appearance was languid, restless, and confused. The pupils of both eyes were equally dilated, and were sensible to light. The countenance was anxious and staring. The respiration was spasmodic, short, quick, and interrupted, as was also the speech. The sound on percussion of the chest was normal. On auscultation numerous mucous râles were heard in the upper lobe of the left lung; in other respects the respiratory murmur was normal, except so far as related to the rhythm. The rhythm of the heart was intermittent, every fourth or fifth stroke was double; in other respects the action was regular. The pulse corresponded to the action of the heart, was small, not quick. The tongue was clean and dry. The mucous membrane of the throat was slightly injected. The bowels were torpid. The liver and spleen were not swollen. No alteration was perceptible either in the wound, which was still open, or in the cicatrices of those which were healed, or in the surrounding parts. A sinapism was applied about the neck, and a quarter of a grain of morphia was administered twice in the afternoon.

3 P.M. The patient seems somewhat calmer. The respiration is freer, and not so jerking. The headach is less violent, but the pain in the neck is the same. There are frequent fruitless efforts to go to stool. The patient can swallow a couple of tablespoonfuls of water, but with difficulty.

7 P.M. The patient's state is worse. The respiration is exceedingly oppressed. Increased restlessness and suffering. The pulse is

100, small and intermitting. There is extreme difficulty of swallowing. The convulsive attacks are more violent. The headach is increasing. There is excessive intolerance of light, and terror is excited at the slightest sound. Ordered chloroform inhalations; cantharides ointment to the wound.

9 P.M. The inhalation of choroform was continued from 7 o'clock until a quarter after. The patient, who exhibited great dread and dislike to it, had to be kept in bed by force. So soon as the chloroform took full effect, the respiration became quieter, all jerking ceased, the pulse was fuller, rose to 160, and its rhythm became uniform. But after its effect passed off, the patient relapsed into her former state, with even still more violent symptoms. The inhalation of chloroform was ordered to be repeated, and mercurial inunction over the parotid glands and in the axilla was prescribed.

Sept. 28, 2 A.M. The inhalation of chloroform was continued from 9 to 11 o'clock, with exactly the same results as before. So soon as it was discontinued, the symptoms returned, and increased this time rapidly, and to a fearful degree. The tendency to vomiting became extremely violent, and recurred frequently. The convulsions came on more severely and oftener, a frothy fluid was incessantly ejected between the firmly clenched teeth. The countenance was sunken and distorted, the eyes were wild and staring, her speech impetuous, confused, imperious. Suffocative attacks supervened, and the patient became violent and almost incontrollable. The inhalation was renewed, and continued, for about an hour with the same results as before. The attacks, which were subsequently more severe, and were accompanied by violent vomiting, towards morning began to diminish, and at 5½ the patient died suddenly, having first laid down in the bed, saying that she was tired, and should go to rest.

The body was examined on the 27th of September, eighteen hours after death, when the following observations were made:—

Great rigidity in the articulations of the lower jaw, less in those of the lower extremities, and extremely slight in those of the upper. General lividity of the body. On cutting through the integuments an evident odour of chloroform was observed.

Cavity of the Skull.—After removing the calvaria, there was found on its inside, corresponding to the wound on the left side of the head, a part of some inches in diameter, presenting considerable vascular injection, and the outside of the skull in the same situation was uneven, rough, and in process of exfoliation. The membranes of the brain were normal, with the exception of slight venous congestion in the finer vessels, particularly at the base of the brain. The cerebral mass was of proper consistence, but on section appeared rather more dotted with blood than is normally the case. The lateral ventricles contained a small quantity of clear serum. The right choroid plexus, which was rather turgid, contained a concretion of the size of some pins' heads. The fourth ventricle was slightly distended with serum.

Cavity of the Thorax.—On opening the chest, the lungs did not collapse. On cutting them out, a considerable quantity of dark fluid blood escaped. The right lung was attached throughout its whole extent, by old adhesions, to the chest; the greater part of its middle lobe was collapsed; the bronchial tubes passing thereto were dilated, and blocked up with a purulent fluid. On the outside of one of them, a calcareous concretion, of the size of half a pea, was found. The mucous membrane of the larynx was pale; that in the trachea was red and congested; the congestion increased gradually down to the bifurcation, and extended, in a very marked degree, throughout the entire of the bronchial ramification. There was interlobular emphysema in the left lung. The heart was normal, and contained both fluid blood and coagula of fibrin.

Cavity of the Throat and Abdomen.—Slight redness of the mucous membrane of the throat. The tonsils were swollen; on making an incision into them, a purulent fluid was discharged. There was no trace of previously existing or present vesicles under the tongue, the surface of which was pale, and partly covered with mucus. Several erosions were found on the mucous membrane of the stomach, especially in the pyloric region. The intestinal mucous membrane was healthy; the spleen was normal; the liver and kidneys were congested with blood, but were otherwise healthy.

The author observed that no cauterization had been, in the first instance, employed, on account of the great extent of the wounds, and their situation on the almost scalped cranium. The good, and in every respect satisfactory, condition in which, on his return from his journey, he found the patient, had almost caused him to forget the origin and the primary nature of the injuries for which the patient was admitted, until the symptoms which set in on the 26th September brought them fearfully to his remembrance. As to the prophylactic cauterization of such wounds, whether with the actual cautery, or with the stronger and more deliquescent caustics, as hydrate of potash, concentrated acids, Vienna paste, &c., the extent of the wounds and, still more, their situation—for example, on the head, the face, in the immediate neighbourhood of the eyes, on the hands, or between the tendons, and sinking deeply into the forearm, over a great joint, or immediately over a large bloodvessel—may leave the surgeon only the unpleasant option of exposing the patient either to the danger which the use of the caustics just enumerated may, and sometimes absolutely must, produce, and whereby the sufferer, in the most fortunate case, may be in a greater or less degree crippled or deformed; or, on the other hand, to the risk of the possible subsequent occurrence of hydrophobia. During the prevalency of madness among dogs, in the capital and its neighbourhood, of late years, which was sometimes more and sometimes less extensive and violent, a great number of persons had been bitten, and many of these were treated at the hospital, either as intern or extern patients. So far as the author knew, the present was the only case of hydrophobia which had, during that time, occurred in the district. He had, in

the cases in which injuries occurred in such parts as are above mentioned, and where he considered it dangerous to employ those caustics which are apt to spread, confined himself to touching the wound repeatedly and decidedly with nitrate of silver, and in other respects treating it as an ordinary wound. In such a case, that of a little girl from the district of Drottningholm, who had her face sadly mangled by the bite of a dog affected with the prevalent madness, which was thereupon killed, in whom the eyelids, especially of one eye, were torn through, so that the conjunctiva of the ball of the eye itself was injured, he thought it unadvisable to apply this caustic over the whole surface of the wound as strongly as is usual under other circumstances. The patient was dismissed cured, and has not since been attacked with hydrophobia; the interval is now nearly two years. Many cases, similarly treated, had occurred, without any injurious consequences having ensued; and Hr. Santesson considered that it would not be reasonable to blame the surgeon who should, under such circumstances, lay aside the deeply acting caustics, and content himself either with touching the wounds with nitrate of silver, or, where they do not occur in the eyes or their immediate neighbourhood, dropping in ammonia, oil of turpentine, creasote, or such like.

In favour of these milder agents may further be quoted the circumstance that, during the last prevalent epidemic among dogs, many persons were bitten, who neither sought nor were submitted to any prophylactic treatment whatever; and that an equal, if not greater, number of such patients, had the wound only once touched with caustic, and subsequently healed under the use of poultices or some ordinary vulnerary ointment, and that, nevertheless, not a single case of hydrophobia had been observed among them.

As to the general treatment to which the girl was subjected, namely, that with chloroform, the author considered that he might as well adopt it as any other of the numerous methods proposed in reference to this hopeless disease, as none of the others afford a prospect of a better result. The action of chloroform in this disease had, moreover, been found, by several practical physicians (Jackson, G. Smith) to be encouraging. In the present case its effect was only transient and palliative, notwithstanding that the inhalations were perseveringly continued, and that the patient was kept for hours under the influence of the remedy. Its character as a soothing antispasmodic was, however, maintained; and Hr. Santesson was of opinion that it deserved to be remembered, if only for this reason, as the ordinary narcotic remedies—such as opium, belladonna, stramonium, tobacco, &c.—often proved incapable of producing that temporary alleviation, alike desirable for the patient and those about him.

Contemporaneously with the foregoing case of hydrophobia, one of traumatic tetanus had also occurred in the surgical wards, and the author called attention to the similarity to one another presented by these two forms of disease in certain respects, a circumstance which

caused several, both of the older and more modern investigators, to regard them as, in essential points, identical. Against this view it may, however, in the first place, be advanced, that hydrophobia has been proved capable of transmission from man to animals, as the dog, guinea-pig, &c., through inoculation of the saliva, which plainly demonstrates the specific character of the disease. The statement that simple wounds are capable of producing hydrophobia, as well as ordinary tetanus, can prove, as Virchow correctly observes, nothing in this respect, until inoculation with the saliva of a person labouring under tetanus has been shown to give rise to hydrophobia in an animal, an experiment which has not as yet succeeded. Besides, the spasm in hydrophobia wants the *tonic* character which distinguishes tetanus, nor does trismus occur in it. The attacks of spasm are, on the contrary, clonic, most nearly resembling those which occur in epilepsy. The character which belongs in common to the two diseases mentioned is the extreme hyperæsthesia, which, however, in tetanus seems especially referable to the spinal marrow, but, in hydrophobia, to the medulla oblongata.

Hr. Düben alluded to the doubt as to the origin of hydrophobia from the bite of a dog, which, often brought forward, had lately been strongly advocated by an Edinburgh physician. This gentleman had shown that hydrophobia in man exhibited symptoms quite unlike those of canine rabies, which latter was said to consist in rhinitis, with secondary affection (by continuity) of the membranes of the brain. The author had likewise called attention to the fact, that although annually hundreds of human beings are bitten by mad dogs in the British Isles, hydrophobia is there, as in other parts, a rare disease; that it may occur without the previous bite of a dog; and that, when distinctly and unmistakably developed, it has been removed by the physician simply assuring the patient that it was not hydrophobia, &c. Hr. Düben did not wish to give any opinion, but merely to direct attention to this view, as it would probably lead to a closer investigation of the etiology of hydrophobia than had hitherto taken place, while its origin was, without consideration, attributed to the bite of mad dogs.—*Hygiea*, Supplement till No. 12, för 1855, p. 868.

Case of Disease of the Heart, with Emboli[a] *in the Crural Artery, Gangrene of the Great Toe, &c., terminating in Recovery.* By Professor Gustaf Von Düben.

J. F. L., a boy, aged six years, born and reared in the country, the child of healthy parents, although thin and of a slender frame, had always enjoyed good health; he had been cheerful and playful, of wholesome complexion, &c. No disease had been observed during his infancy. On the 23rd of July in the present year (1855) he had gone out, accompanied by a younger brother, with food to his

[a] See page 255, *note*.

father, who was engaged in mowing, and when his father had dined, he set out homewards. He had proceeded but a short way when he suddenly fell, without having made any previous complaint, and without uttering any cry in falling. Seeing that he did not get up again, the brother called his father, who, on coming to the spot, found his son senseless and speechless, his whole body relaxed "as a rag." On being sprinkled with water, he moaned, moved slightly, cried, and intreated his father to bring him home, as it was "so dark that he could not see." Arrived at home, he continued to speak little and incoherently, but his body, instead of being flaccid, was stiff and cold; he took drink when it was offered to him, and sat up occasionally. He got opening medicine, sinapisms were applied to the calves of the legs, and camphorated frictions were employed. An intelligent person who saw him in this state considered him to be "almost dead, because he scarcely breathed, and was stiff and cold;" in the evening, however, he revived, became warm, and slept. During the night he complained of pain in the left foot and great toe, and the latter, on inspection, was found to be black at the tip. Towards morning he complained of pain in the thigh and leg of the same side. During the night he had several motions, and in the morning called for food. He was then quite collected.

He was admitted into the Children's Hospital at noon on the 24th, when the following report of his state was noted:—

The boy is thin and of delicate frame, but not particularly slender. He says he feels well, with the exception of a slight pain in the left leg, extending from the groin to the great toe. In the groin, a cord, of the thickness of the finger, is felt from Poupart's ligament downwards, in the direction of the vessels, about one and a half inches long; this cord is tender on pressure, and the skin over it is somewhat red-coloured. On the great toe is a black, gangrenous vesicle, as large as a bean, in a half-moon shape, under the nail; the toe is swollen, as is also the next toe, and there is considerable œdema up to the instep. Both the left and right leg are perfectly movable, although motion of the former is attended with pain. The lymphatic vessels are not perceptible to the eye or to the touch. The boy can raise himself, is quite collected, and is equally strong in both sides of the body. There is no strabismus, the pupils are normal, the sense of vision is perfect; there is appetite; the pulse is soft, and regular in rhythm and frequency. Over the aorta a doubling is heard of both sounds of the heart, which are propagated into the vessels of the neck. There is a strong venous murmur in the neck.

Diagnosis.—Emboli in the crural artery and in the dorsal artery of the great toe, in consequence of coagulation in the heart, probably depending on chlorosis.

The toe, instep, and groin were cauterized, and warm poultices were applied; strict rest was enjoined.

July 25th. The upper part of the thigh was œdematous; the patient's state was otherwise unchanged. Cold poultices.

28th. The vesicle on the toe was opened. The œdema of the instep had disappeared; improvement progressive.

August 1st. The œdema of the groin was gone, but large vibices occupied its situation on the thigh.

8th. The lymphatic glands in the left groin have been swollen for the last couple of days, yet little more than in the right, where they are also swollen. The sore on the left great toe, which, since the gangrenous vesicle fell off, has been open and clean, is rapidly granulating. To be touched with caustic.

24th. The patient was dismissed. The sore on the toe was nearly healed. The boy walked with difficulty. The lymphatic glands in the groin were imperceptible, as well as the swollen cord in the left groin observed on admission. The reduplication of the sounds of the heart continues.

September 9th. The boy showed himself, according to promise, at the hospital. He was allowed to get up at home, in consequence of which the sore on the toe continued open; was otherwise well. On auscultation of the heart, the above-mentioned double sounds were distinctly heard over the aorta, and still more strongly after the boy had run, under which latter circumstance a weak double sound was also heard from the mitral valve, accompanying the second sound of the heart. There was no venous murmur in the neck.

This case, although necessarily imperfect, in consequence of the young patient's inability to describe his state, furnishes sufficient details on which to base the following observations:—

It is uncertain whether the boy suffered from any chlorotic affection, although his emaciation, and the strong venous murmur heard in the neck on his admission, would indicate the existence of such a morbid condition. It is, however, certain that he laboured under both contraction and insufficiency in the aorta, with some constriction of the mitral valve, which cardiac disease must be regarded as having probably supervened in the chronic form, as his mother positively denies his having suffered from any acute affection. From some unknown cause a deposition of fibrin took place at noon, on the day first mentioned, on some of the diseased valves, which, having attained a certain size, suddenly separated, and was driven up into the arch of the aorta. It stopped there, probably in consequence of the carotids drawing in with the current small processes of the soft coagulum, without, however, tearing off any part of it. Hence the supply of blood to the brain was suddenly and totally cut off, by which the symptoms derived from the nervous system are explained. Had any portion of the coagulum been separated, the symptoms described should have lasted longer, or have occurred under a different form. Either now immediately, or after the lapse of an indefinite time, a small coagulum was separated from that arrested in the arch of the aorta, or was conveyed from the heart in the (perhaps somewhat diminished) stream of blood passing through the descending aorta to the dorsal artery of the great toe, where it stopped and caused the gangrene, by checking the nutrition. Subsequently, probably at the period of the return of con-

sciousness, the coagulum attached in the aorta loosened, and was conveyed to the spot where the crural artery gives off the profunda and the circumflex femoris, where the plug got across the dissepiment, and hung with prolongations in one or more branches. It is not to be supposed that the coagulum, which was arrested in the crural artery, produced the gangrene in the great toe, for this gangrene was of too limited extent for this to have been the case, and the œdema above it was too circumscribed; and besides, the pain and other symptoms from the toe existed before the corresponding pain from the groin.

It appears to me that it is only thus we can explain the symptoms observed in the child.

The cure was complete. No emboli remained, but they were completely dissolved in the stream of blood flowing on them from behind.—*Hygiea*, September, 1855. Page 621.

On the Bone "Luz." By PROFESSOR A. RETZIUS.

DR. FRANCIS RAMSBOTHAM has, in his excellent work on "The Principles and Practice of Obstetric Medicine and Surgery," in describing the sacrum, introduced, in the form of a note, a complete learned treatise on the origin of the term. In this treatise is also mentioned the bone called by the Rabbins "lus" or "luz," which he considers to have been their name for the lower part of the spine, the "os sacrum, or coccyx." Long before I had, through my learned friend, Professor Faye, been made acquainted with this treatise, I had my attention directed from Bauhinus' "Theatrum Anatomicum," Basileæ, 1605, as well as from Palfijn's "Beschrijving der Beenderen van s'menshen Lichaem," Gendt, 1702, to the great importance which the Orientals seem to have attached to the bone in question.

Bauhinus on this subject speaks as follows:—"The Hebrew writers allege, that after the eighteenth vertebra in the human spine is found a bone indestructible by water, fire, or any other element; neither can it be broken or crushed by any external violence; God shall water it at the last day with heavenly dew, and then shall the other parts be again collected around it, and unite to form a body, which, after God has breathed upon it, shall once more arise in life. They call this bone *lus*, not luz, and say that it is situated after the eighteenth vertebra in the spine, opposite the thigh"[a].

This fiction is derived from the Rabbi Uscaia, who lived 210 years after the birth of Christ. He wrote at that time a book called "Bereschit-rabba," that is, the great exposition of the five books of Moses; and from this work the other Rabbis have taken the story. I here pass by the other very remarkable comments on this bone,

[a] Rabbi Nathan writes, in the Talmudian Lexicon Aruch:—"Lus is a little bone at the end of the eighteenth vertebra; the whole body moulders with the exception of this bone."

which are quoted from the Rabbis by the learned naturalist of Basle, and dwell merely on this point, that both he and Palfijn place it above the os sacrum.

It may, however, readily be supposed, that neither the Rabbi Uscaia, nor those who borrowed this account from him, were very clear as to the number and order of the vertebræ, and consequently the matter has been explained in many different ways. Strictly, according to the words in Aruch, "Lus is a bone at the end of the eighteenth vertebra of the spine," the bone in question should be the last dorsal vertebra. Even Galen observes, that in this region of the spine we find, as it were, a turning-point among the processes; that those lying above it look downwards, while those lying below are directed more upwards. In men this point occurs at the twelfth dorsal vertebra, and, therefore, literally at the bone under or at the end of the eighteenth vertebra of the spine.

In a great number of Mammalia, in whom the spinous processes are more developed, this condition is seen still more plainly than in man. Of this the fox and jerboa may be given as examples.

The ancients were not agreed as to the definition of the bone "luz," but they agree in considering it as a part of the spine.

As is well known, several, particularly of the older writers, have explained in many different ways the cause of the origin of the name sacrum, with which, as has been stated, lus or luz is considered to be synonymous; but no one has, so far as I know, advanced any scientific reason for it. Such, I believe, however, may be found.

We know from the writings of Aristotle, that even in his time a certain knowledge of embryology was possessed. He knew that on the third day the heart was visible in the egg, as well as in small, prematurely expelled fœtuses, and he regarded the spine as the source of the other bones. Palfijn says on this subject:—"Aristotle, and almost all the learned men of antiquity, have stated that the spine is the foundation and source of all the bones, and that it is the part of the skeleton which is first formed. They have, therefore, likened it to the keel of a ship, as the part of the structure which precedes all the others, and on which they are supported."

What was more natural than that such a discovery should be employed as the foundation for manifold speculative explanations, and even for the theory, already alluded to, of the resurrection of the body; we all know how wide a field of speculation and mysticism the learning of antiquity in general occupied. When the matter passed from the proper philosophers to the scribes, it acquired a still freer development, so that it even assumed the form of a miracle. Thus Bauhinus states, that when the Emperor Adrian asked the Rabbi Joshua, of what God would form man in a future world, he answered "of the bone lus, which is situated in the spine." When Adrian further asked him whence he knew this, and how he could prove it, Joshua is said to have, in the sight of all, laid this bone in water, but it was not thereby softened; he then cast it in the

fire, but it was not burned; he placed it under a millstone, but it was not crushed; it was afterwards laid on an anvil and struck with a hammer, by which the anvil was broken, but the bone did not give way. Most likely the Rabbi was an expert juggler, but the circumstance is not without interest in the history of anatomy.

In the same manner, probably, many traditions have continued to our own time, clad in dark and marvellous forms, incomprehensible to the multitude, but ultimately based upon simple and faithful observations, which it is the province of the naturalist to unravel.—*Förhandlingar vid de Skandinaviske Naturforskarnes Sjette Möte i Stockholm*, p. 270.

On Capillary Emboli[a]. By Rudolph Virchow.

After I had, in my first Essay on Acute Inflammation of the Arteries (Archiv. i. p. 272), established the theory of the obstruction of the larger class of vessels, by means of the entrance of plugs (emboli), a great void still remained in reference to the smaller arteries, and our apprehension of metastasis, as dependent on such obstructions of the more minute vessels, continued more or less obscure. Some later cases, which I have observed, point out the way in this direction also; and I will, therefore, now give a short notice on the subject.

The first case was that of an individual, aged 55, affected with very decided albuminuria, who had latterly been rather soporous, and, seven days before death, which ensued on the 24th of December of last year, had suddenly become amaurotic. On post-mortem examination, the so-called metastatic, or pyemic ophthalmia, which has been recently, and very faithfully, described by H. Meckel ("Ann. des Charité-Krankenh." v. ii., p. 276), was found to exist in a very remarkable degree. The choroid, the retina, the vitreous humour, the zonula, and the lens, were filled with white opacities; the retina, besides, was studded with numerous ecchymoses, partly resolved and softened. Microscopic examination gave the same result as Meckel had obtained, namely, partly young purulent elements, partly granular, and fibrillar infiltrations of the tissues.

Similar conditions also existed in the kidneys, and were found of older standing in the spleen. But nowhere was a primary purulent or ichorous spot found; only in the heart were there consi-

[a] Emboli, from ἐμβολή, injection: a substance impelled into a vessel; a term applied to fibrinous concretions detached from the heart or great vessels, which, being carried with the blood into the circulating current, and arrested where the caliber of the vessels becomes too small to admit them, give rise to serious symptoms, the intensity of which is proportionate to the degree of obstruction produced by the plugs. This word must not be confounded with *embole*, a term formerly used to denote the reduction of a dislocation.—See "Gazette Médicale de Strasbourg," April 20, 1856, column 156. Further criticisms on the term may be found in the "Gazette Hebdomadaire," April 25, 1856, p. 289.—Translator.

derable changes in the auriculo-ventricular and aortic valves, as well as of the endocardium on the septum, with very extensive degeneration of the arteries. The diseased portions of the left ventricle, especially those on the septum, were rough, swollen, superficially softened, and covered with brittle masses, which, under the microscope, were seen to consist of dense, amorphous, highly granular, yellowish-looking lumps. To what, then, could the metastases be owing? After long investigation, I at last succeeded in discovering, in the capillary vessels of the retina, the same amorphous, granular, yellowish masses, of similar chemical constitution, too, as I have mentioned as having been found in the heart.

Still more conclusive was the same condition, as it existed in a woman, aged 27, who died in childbed, of endocarditis, on the 10th of January of the present year, and in whom similar changes had taken place on the mitral valve. In this case my attention was first attracted by the emboli of the fine branches of the coronary artery of the heart, which could be recognised even with the naked eye, and had produced an acute yellow softening of the muscular structure. I then found numerous hemorrhagic knots in the spleen, in which the endocarditic emboli could, with great constancy, be traced into the penicilli (arterial tufts?). Further, I succeeded in observing, in small ecchymotic foci of the kidneys, both little arteries and isolated loops of glomeruli filled with them. Lastly, Professor H. Müller, accidentally, had the eyes cut out for demonstration, and here again was found that metastatic endophthalmia, caused by little plugs in the vessels of the retina and choroid.

The theory of pyemia has thus again been deprived of a portion of its dominion. The hemorrhagic inflammations of the spleen, the kidneys, and the eye, are connected with emboli; and as we have to distinguish the *apoplexia embolica* from the *apoplexia sanguinea cerebri*, so must we, in future, consider a certain number of the cases of pyemic and uremic amaurosis as embolic.—*Virchow's Archiv*, Band ix. 1856, p. 307.

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MEDICAL SCIENCE.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XI.—*On Encephaloid Cancer occurring as an isolated manifestation of Malignant Disease; and on the Cancerous Degeneration of Warty Excrescences: with the Operative Treatment applicable to each*[a]. By RICHARD G. H. BUTCHER, Esq., M.R.I.A., F.R.C.S.I.; Surgeon to Mercer's Hospital; Examiner on Surgery in the Royal College of Surgeons in Ireland; Lecturer on Clinical Surgery, &c., &c.

ON a former occasion it was my pleasure to bring under the notice of the Surgical Society of Ireland some lengthened observations relative to malignant diseases, and chiefly upon the relationship that is found to subsist between cancer and fungus hematodes,—an alliance which I illustrated by cases, preparations, and specimens: firstly, where the diseases existed together; secondly, where the one was consecutive to, or replaced by, the other; and thirdly, where the two manifestations of disease were continuous in the same tumour[b].

My object now is to direct the attention of the profession to some remarkable instances which I have met with, where

[a] Read before the Surgical Society of Ireland, Session 1856.

[b] Dublin Medical Press, April, 1847.

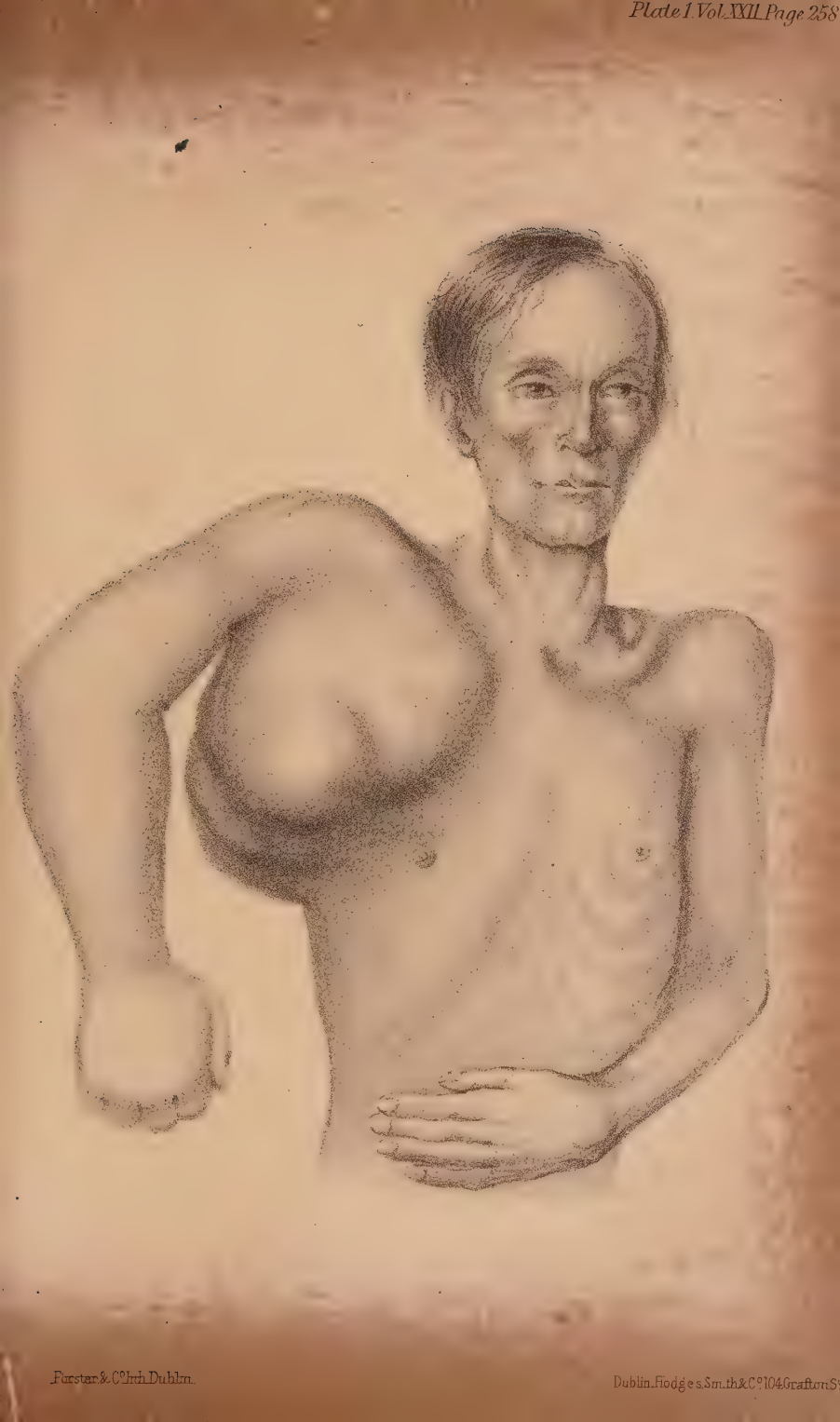
the encephaloid form of cancer had been the primary development, limited to a part, solitary in its germination, progressive and rapid in its course,—in its consequences fatal to life. To this I shall append some observations relative to the cancerous degeneration of warty excrescences, and the treatment I deem best suited to both.

The most remarkable instances of encephaloid cancer, as an isolated morbid product, which I have met with, have sprung up in the armpit, attaining in a short time to a magnitude almost incredible. As the first example confirmatory of this fact, I shall extract from the catalogue of my museum the following particulars: they are in reference to the cast, No. 151, from which an accurate drawing has been made, and represented in Plate I.

Case I.—*Encephaloid Cancer, existing as a solitary manifestation of malignant disease, in the right armpit.*

The patient, a young man, aged 35 years, complained, about two years previous to the period when I saw him, of a "small kernel" in the right axilla; it did not exceed the size of a hazel-nut for six months, when the pain was of a most distressing and lancinating character. After the lapse of this time the tumour began rapidly to increase, which it continued to do for a year; the pain, however, was not so continuous, and became even of a milder character. After this period, its growth was truly surprising and alarmingly rapid, so as to pass beyond the forepart of the right chest, filling up the entire axilla and descending far below it, forcing out the arm to a great extent from the side, and extending posteriorly beneath and behind the scapula, at the same time forcing the base of the bone near to the spine. At this time the pain was extremely severe, as if a cord was bound most forcibly round the tumour; and from that date the patient gradually grew worse, and struggled for three months, when he died, worn out by irritation.

Post-mortem examination did not reveal the least encroachment of the diseased mass within the cavity of the chest; but the pleural sac on the right or affected side contained at least a gallon of watery fluid. Patches of lymph lay upon the surface of the lung in isolated spots, and also over the costal pleura, while the lung was collapsed in the right chest. The structures of the lungs, the liver, the mesenteric glands, and brain, were each examined with the greatest carefulness, yet no trace of carcinomatous deposit could be detected in them, or in any other parts. The tumour presented over its entire surface extensive networks of vessels, independent of large veins which



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covered in all directions; besides this vascular coloration there was a reddish-brown hue, tinged with yellow, predominating in a very remarkable manner over the entire growth. The most prominent part presented a brilliant carmine hue where disrupture of the parts threatened; but this did not take place, yet here was the softest, most elastic, and most painful part of the entire growth. Before death the body presented a striking example of emaciation; while the right upper extremity was increased to seven or eight times its natural dimensions by effusion, the result of pressure on the absorbents and interrupted venous circulation; besides, the colour of this engorged arm was of a peculiar pink shade, and the pain occasioned by its compressed nerves was of the most excruciating description. The wretched sufferer was ever complaining of the tingling, darting, bursting sensation in it, until three days before death, when all sensation was annihilated, though its temperature was inordinately augmented above the sound limb.

The next instance is even more remarkable, for though a striking similarity pertains between it and the first, yet this latter is more interesting; it, too had its nidus in the armpit, but upon the left side; it had attained to far greater magnitude; it had distorted parts; and, independently of its corroding influences, interfered by its encroachments with functions essential to life; yet, by the all-powerful law of adaptativeness impressed for wise purposes on the living frame, death, by an unusual way, was averted, and followed much in the course which I have related; but in the description of the annexed case, I have been more minute than in the former, because it was for a longer time and more steadily under my observation.

Case II.—*Encephaloid Cancer existing as a solitary manifestation of malignant disease, located in the left axilla.*

Henry Cleighton, aged fifty-six years, admitted to Mercer's Hospital, Nov. 13, 1855, with an enormous tumour situated in the left armpit and implicating widely the parts around. He stated that in February, 1855, he first perceived a small kernel, not larger than an almond, in the axilla; the fact of its being there without his consciousness, implied origination without pain or uneasiness, and he could not assign any provocation for its occurrence. To this early development his attention was directed by casualty, and in the following way:—After enjoying a bath, when in the act of drying himself with a coarse towel, a fold of it being forcibly drawn beneath the

arm occasioned pain, and, on feeling the part, he was for the first time sensible of the hardness and swelling there. From this period the growth gradually assumed a wider extension; it was slow, gradual, but progressive,—the patient described its feel as that of a hard lump, partially movable. When not interfered with, it lay protected in its recess and unproductive of annoyance; but, on being handled, great uneasiness and rather lancinating pain settled in the part for many hours after, while, upon any constrained exertion, when the limb was forcibly extended, and the muscles brought into rigid contraction, its type was more of a dull, heavy, oppressive weight, or paralyzing force.

From this early period of the growth of the tumour, after the first three months of its existence, it began rapidly to increase, matting all the textures in its vicinity together, and soon slowly crept beyond the confines of the recess in which it germinated and sprung; and emancipated, released from pressure, it quickly passed in that direction offering least resistance, forwards beneath the pectoral muscle. Previous to this change the suffering was intense, agonizing, "as if a burning iron was thrust into the part." Upon the relaxation of its coverings, the pain was more moderate and subdued, the skin was unaltered in its colour, and occasionally a throbbing, pulsatile feel was all that was experienced by the patient, up to this time, even when a large abnormal mass, the size of the clenched hand, blocked up the humero-thoracic space. A visionary anticipation was held out, that a crisis was at hand; that matter, though slow in forming, yet was sure to be the result, and with its presence might be anticipated a relief from local annoyance and constitutional distress. In April, additional to the increase of the tumour forwards upon the chest, it passed upwards along the under surface of the clavicle, and rapidly began to enlarge backwards, lifting outwards the axillary costa of the scapula, and tilting backwards and upwards its posterior angle; the increase was rapid at this time in all directions, so that its magnitude exceeded the size of an adult head; through all this deposition of structure, this development of growth, the pain was unrelenting, sometimes unmitigated for hours. In August the tumour was mistaken for a large abscess, and opened to an inch and a half in its most prominent part, namely, in front—the patient stated that "a small quantity of soft curdy matter was pressed out through the opening, but did not flow off of its own accord." The edges of the wound however, were healed in ten days, and a silvery cicatrix, about two lines in width, marked the place of selection. The patient

expressed himself to have felt some relief from the bleeding of the wound, and he thought by it the tightness was released. Yet, after the lapse of a few days, all his tortures returned in an unmitigated form, and on the date already mentioned he was received into Mercer's Hospital.

His condition now was truly pitiable: the tumour had attained enormous dimensions, almost covering the left side of the upper half of the body; from the angle of the jaw it had extended as low as the ninth or tenth ribs, and from the mesial line in front to the spine posteriorly; the tumour had also considerably altered its outline and configuration of surface: it was nodulated, large and prominent masses presenting in various directions. Its entire bulk inferiorly appeared most defined; with a wide base, spread out, as it were, across the left chest, it projected directly outwards and forwards, assuming a huge conical form, with a smoothly nodulated surface. Beyond and in front of this, the primary growth, was a superadded part rising upwards to the clavicle, and forwards to the sternum, while posteriorly a flattened process, gradually expanding, incorporated in itself nearly the entire scapula, lifting it from the thorax many inches, and covering it with a like production.

The integuments over the tumour presented many shades of colour; around its circumference the discoloration was but trifling, particularly beneath the clavicle and at the forepart of the chest, while the colour over the most prominent parts, particularly the larger mass distorting the arm from the side, was of a deep livid purple colour, conspicuously turgid in many parts with a bright reddish hue. On closely examining the circulation on the surface of the tumour, many peculiarities attending this class of malignant growths were discernible. Over the more pallid walls of the tumour large veins coursed, not prominent and projecting, but lodged in channels or sulci; the blood in these vessels seemed even darker than that circulating through a healthy venous system. The inosculations between these tubes were frequent, yet tortuous, and in many places the veins fully attained the magnitude of the saphena, while the general aspect of the vessels, from their anatomical arrangement, gave the impression that the contained fluid was not commensurate to their capacity: hence, as it were, a flaccid appearance. The high coloration of the tumour was occasioned by the inosculation of numerous small branches of veins and arteries, presenting a ramiform arrangement, while the preponderance of either set of vessels stamped the colour of each particular part. Many of these vessels on the surface must be looked

upon as enlarged capillaries, that were never intended to carry red blood, and whose walls were thinned and weakened by distention from the incurrent afflux; but, in addition to these, there were many of new creation, imperfect in their organization, and that readily yielded and broke up, extravasating their contents where superficially situated, and occasioning, as I believe, the yellowish hue so characteristically prominent in this form of malignant disease. Around the confines of the tumour the integuments were soft, flaccid. and immovable, while over the more projecting and discoloured parts they were tense, shining, thinned, and of an almost transparent delicacy, and adherent to the structure beneath.

On manipulating the tumour, taking it *en masse*, balancing it in the hands, an idea of its inordinate size and weight was more strikingly enforced; it glided but little upon the chest, to which its concave base was moulded, and any force exerted upon it influenced the entire upper extremity; in many parts firm, unyielding portions could be felt, while in others a springy, elastic feel was communicated to the touch; and in others a distinct undulating sensation, almost amounting to fluctuation. In two parts the latter was strikingly characterized, and produced by the flow from disruptured vessels in the softened and broken-down tissues of the morbid product, from half to three-quarters of an inch from the surface.

Such was the condition of the local manifestation of disease on the date of admission; and coexistent with this state was the constitutional disturbance augmented. Unrelenting pain, seldom varying day or night for weeks, produced its marked effects: emaciation, debility, a haggard and wretched aspect, and, as typical of the morbid poisoning, a yellowish tinge pervaded the entire body. The pulse, too, pointed to the fatal malady—it was 125; and I may here state I have seldom seen it below 120 when malignant disease has been fairly established in the system.

The limb was placed in a relaxed position and propped up with pillows; the most suitable diet and support were afforded to lift the drooping powers of life, while sedatives were carefully administered to allay pain, to soothe, and solicit sleep.

So rapid was the growth of the tumour, that on the 28th of November its bulk had become considerably augmented in every direction; gradually increasing upwards, it passed beneath the clavicle and became prominent in the posterior inferior triangle of the neck. On the 15th of December that portion of the tumour in the neck had assumed the size of the section of a large melon, and the annoyances created by it were

gradual as its growth. The tension originating from the increase of size compelled the patient to elevate the shoulder, to compensate for the dragging on the parts; at this time, too, the arm began to swell. So completely and fully blocked up was the armpit, that the extremity had to be kept apart from the side, yet the pressure on the nerves, evidenced by the numbness of the entire limb and the obstruction to the returning venous column, could not be altogether obviated by any posture. The tumour in the neck, continuing in its growth, passed backwards over and beneath the trapezius, upwards to the angle of the jaw, and forwards displacing the larynx and trachea considerably to the right side; the angle of the thyroid cartilage projected remarkably in this direction, for not only were the parts put out of situ, but they were likewise twisted by half a turn, owing to the morbid product insinuating itself beneath the left margin of the trachea and larynx; by this malposition of parts respiration was a good deal interfered with, and deglutition rendered difficult, at least the swallowing of solid morsels. The tumour in the neck was restrained from any great prominence, owing to the manner in which the fascia binds down this region; nevertheless, its magnitude was considerable: owing to this arrangement its lateral expansion was in a greater degree overcoming all obstacles, and thus thrusting the trachea aside; the force of the tumour was also manifest upon the deeper-seated parts—the vessels circulating beneath, for, though a feeble current was propelled by the heart's action through the main arteries, yet even gravity itself could not overcome the resistance for its return,—therefore, all the veins on the surface were enormously enlarged and distended; the external jugular was as large as the little finger, and received numerous tributary vessels on either side, particularly above, from beneath the jaw. Now the arrangement of these venous trunks was widely different from that of the veins proper to the morbid growth: the former were convex above the surface, movable with the coverings of the part, while the latter were not in the least degree prominent, but lay channelled in the tumour. No words can describe the pain which the patient suffered at this time: I have seen him writhing in agony and bathed in sweat; in giving expression to his misery his voice was feeble, his respiration short, rapid, and faulty, suddenly arrested by "darting pain, as if a knife was thrust through the tumour." At other periods he would complain as if "a burning iron was searing the part," while again, when relating his miseries, he would suddenly become faint, overcome, and with all the indications of impending death, until resuscitated by powerful stimulants; but here

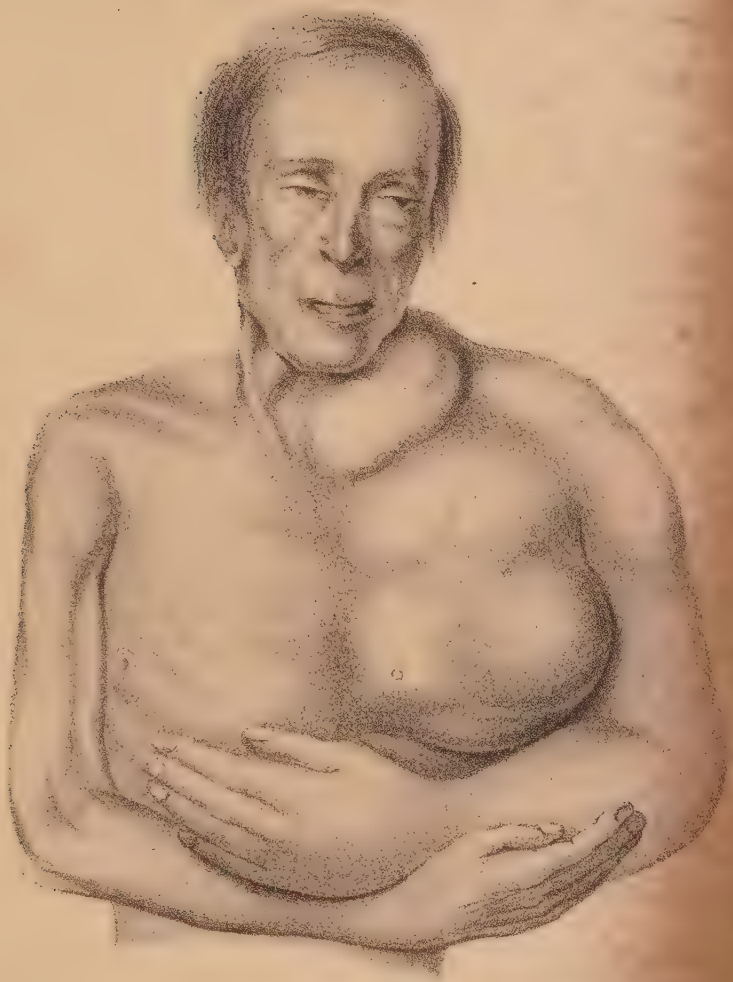
the respite was of short duration—again the same scene was to be enacted, for ever the torture was returning.

At this time, too, a symptom was well marked which I had been watching for days, namely, a drooping of the eyelid on the affected side; it crept on almost imperceptibly, but finally was accomplished; yet, on rousing the patient in speaking to him, there was proof that the motor power was only in abeyance, not annihilated, for the lid under such circumstances was tardily raised, and kept open. The left side of the face, too, was slightly œdematous, which may probably be ascribed to the patient reclining towards the affected side, if not fully turned on it. On January the 6th the patient referred great pain to the root of the neck while in the act of swallowing, and when the morsel was passing down, in addition to the pain, a sense of suffocation; on careful manipulation a small portion of the tumour could be traced passing from the neck downwards in front of the trachea towards the chest. On percussion over the first bone of the sternum, a dulness was evident, quite opposite to the sound produced previous to the elicitation of those unpleasant symptoms.

Thus the case went on until the 12th, when symptoms of rapid effusion in the chest were fully developed. The information to be derived from physical signs, so beautifully traceable through all the stages of ordinary pleuritic effusion, were here denied, entirely masked by the abnormal growth muffling the thoracic cavity. The patient was now restless, tossing from side to side, rolling partially over the affected chest—anxious breathing, respirations quick and small, attended with severe stitches striking through the side, and a pulse rapid and faltering. The sufferings of the man at this time, though apparently smothering from oppressed respiration, were the most frightful I ever beheld: no opiates could quiet his state; suddenly he would scream out, at the same time making a violent effort to get from the bed; but would again instantly sink down exhausted and overcome. During these violent contortions the arm lay swollen in an alarming degree, as if paralyzed, immovable, by his side. Thus, these miseries were repeated over and over again, with but a brief intermission for twenty-four hours, when nature reluctantly succumbed, and death quickly followed.

Plate II. exhibits the most accurate drawing, taken from a beautiful cast in my possession, of this body.

Examination after death (29 hours).—It is unnecessary to advert to the external characters of the tumour; the thickness of the skin in various parts, its attenuation in others, the



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peculiarities of its colour, or the disposition of its vessels. On section, dense stromal masses pervaded it, of various shapes and sizes, allocating it into spaces, most generally assuming a spherical form, and containing within them a substance closely resembling cerebriform matter. In other parts of the growth, however, it was not so: hard fibrous bands, striking from a central nucleus, radiated in every direction, while within the interspaces close to the centre the contained parts presented a firm granular arrangement. The colour so vividly represented on the surface was not deficient in the deeper parts of the tumour; in many points, particularly where the resemblance to cerebriform matter was most striking, the vascular supply was very abundant and most delicately arranged, while in others the arterial colouring seemed to exude through the coats of the vessels, and tinge all indiscriminately. In many points there was interstitial hemorrhage into the loculi of the more softened parts, giving rise to fluctuation, and yielding by its presence to the unpractised touch much of the semblance of suppurative action established and perfected. As already noticed, the scapula was received between two great divisions of this tumour behind, the one superficial, and the other beneath its surface; but the bone was not involved or incorporated with the morbid product. Within the armpit the glands were enlarged, spread out, and the surfaces of many identified with the encephaloid matter; they were pale, flabby, and sometimes difficult to be traced. This fusion of the glands and the cerebriform matter together was best marked in the upward development of the tumour, as it reached the posterior angle of the neck. On lifting the mass from the surface of the thorax, I was much surprised to find that a deep root held it in front; in other words, a large process of the growth had passed between the second and third ribs, having destroyed the muscular fibres closing the intercostal space. On removing the integuments from that portion of the tumour in the neck, the difficulty experienced in deglutition was readily accounted for—the partial rotation and displacement of the trachea to the right side was easily recognised—but in reference to deglutition it was observable that a considerable piece of the anterior part of the tumour passed into the chest by the left side of the trachea, pushing it over to the right, but not displacing the œsophagus, which was compressed in a moderate degree against the spine; then, during the act of deglutition, when the morsel arrived at this point, owing to the bony arch in front, the morbid mass could not sufficiently yield to its easy passage downwards. On lifting carefully the sternum and the cartilages of the ribs

on either side, the extent and very peculiar arrangement of this growth were well seen in situ. That portion which passed from the neck was fully as large as an orange, but spread out, and of a spheroidal shape, while that passing through the intercostal space bulged into the left chest, at the same time that a long, wide, flattened process pushed down, as it were, the pleura-costalis and crept between it and the inner surface of the wall of the chest forward, until it met with that portion descending from the neck, when they became indissolubly united together. This portion of the tumour was likewise attached and incorporated with the upper lobe of the left lung. The organ, though attached in this way above, was completely collapsed,—the corresponding pleural cavity containing, by measurement, four quarts and a half of a yellowish watery serum, with some flakes of lymph floating through it; while the cavity of the pleura on the right side held nearly a pint of similar fluid. The lung on the right side was partially emphysematous, but had no deposit in its parenchyma. On slitting open the pericardium, two ounces and a half of light straw-coloured serum were contained in it. The heart was but little larger than natural; it was pale, flabby, and with an abnormal deposit of fat in the course of its nutrient vessels; its valves were in a perfect state, and altogether healthy. On examination, the brain proved to be healthy in every way; the only change noted was an excess of the spinal arachnoid fluid, which, no doubt, filled its office here as a compensating support for weakened vascular supply. With the same carefulness, the liver, mesenteric glands, and abdominal viscera were examined, particularly the former; portions of it from various parts were submitted to microscopic examination, yet no departure from a healthy arrangement could be detected or found out.

I have met with many other instances where the encephaloid form of cancer made its appearance as a *solitary manifestation of malignant disease.* I have seen it often in the testicle, and in many instances removed without any return of disease. I have seen it in the eye, and extirpation performed successfully. I have met with it in the breast, and seen it in small masses on the extremities, and both operated myself and assisted others in several cases with encouraging results. About seven years since I assisted in removing the upper extremity of a young gentleman, where the entire fore-arm was one mass of encephaloid disease. After the most careful and rigid examination of the body, the tumour was presumed to be an isolated one, and, believing such to be the case, I sanctioned

the operation. I have a drawing very accurately representing the condition of the part. The entire fore-arm had been transformed into a shapeless mass, measuring above the wrist nineteen inches in circumference, and below the elbow eighteen and a half. Seven years have now passed by, and it is pleasing to say there has been no return of the disease—the prognosis was correct. Another example I shall relate, where the disease was isolated, and successfully removed.

Case III.—*Encephaloid Disease of the Testicle; Extirpation; Recovery.*

In April, 1851, a gentleman applied to me for advice about an enlargement of the left testicle, which commenced five months before. It made its appearance as a small tumour, which continued gradually to increase for three months without pain—no uneasiness more than a dull, heavy sensation marking its presence. After this time the pain became excessive, and subject to exacerbations, both their frequency and violence increasing to the date of the removal of the part. Coexistent with the growth and enlargement of the gland were the constitutional distress and emaciation manifest. When the gentleman came under my care, the tumour was fully the size of a small melon, of somewhat an ovoid form, and measuring sixteen inches around its longest circumference, while its circumferential measurement transversely was fully eleven inches. The integument was of a dusky red colour, with numerous large veins coursing on its surface. The tumour throughout was springy and elastic to the touch, and exceedingly painful after handling. The cord was neither enlarged nor thickened, and on the strictest examination I could not detect internal mischief in any of the vital organs or abdominal viscera. I pointed out fairly and impressed upon the gentleman my opinion as to the inveterate nature of his complaint, his formidable malady, and urged the propriety of at once removing the part. When he heard my decision, he was silent for a few minutes—considered—and then readily assented to the proposition. Assisted by the late Mr. Rumley, I removed the testicle, and a more perfect specimen of encephaloid disease could not be procured. The gentleman rapidly recovered after the operation, and, I am happy to state, is now alive and in good health, following his avocation as an extensive farmer in the country.

From a thoughtful review and consideration of these several facts, dispassionately weighed, I am led to the inference that

operative surgery might be had recourse to more frequently than it is in many cases of malignant disease. I am well aware that such a doctrine is at variance with the opinions even of many able men, who contend that it is better not to meddle with such growths by excision, and who put their trust alone in palliatives; but I cannot coincide in these views, or assent to the postulate. I have seen in very many instances the happiest results from well-timed operation, in several an immunity from return for years, and in others a total exemption from the fatal malady for life. I freely admit exceptions will arise; there are cases which present themselves to every surgeon altogether beyond his art or power to save, and which I would be just as loath to operate on as the warmest supporter of the palliative treatment. Yet I maintain there are numbers of cases permitted to become so, to assume this type, and to pass beyond the pale of operative relief, by delay and indecision on the part of the practitioner. Though I have so favourably spoken of operation in certain cases well selected, and by the sound judgment of the practitioner, I cannot conclude or dismiss the subject without forcibly urging the propriety of no rash interference when the morbid product is widely disseminated through complicated parts, for unless all contaminated be taken away, cut out, no permanent benefit can be expected to accrue.

As an illustration of what I wish to convey, the following case is most apposite: it is one of encephaloid disease of the lower jaw, implicating the glands and all the soft parts in every direction around. This cast, marked in the catalogue of my private collection No. 339, and from which the drawing Plate III., Fig. 1, was taken, shows the exact similitude of the man when I saw him, and the following are the particulars bearing upon the case:—

Case IV.—Patient, a man aged 34 years, by trade a stonecutter. He described the tumour as having commenced between four and five years before: it originated as "a small nodule on the outside of the lower jawbone," behind its angle; it was accompanied from the first by intense pain, which never entirely deserted it; from this the countenance was haggard, and highly expressive of suffering; the body was greatly emaciated, and the skin tinged of a dusky yellowish hue; the pulse was rapid, 130 in the minute, and below this standard it never fell; the integuments covering the tumour were strained and tightened, ready to burst, and their coloration peculiarly characteristic of encephaloid disease, being of a purplish red colour, varying in intensity,—the most prominent parts being

Fig. 1.

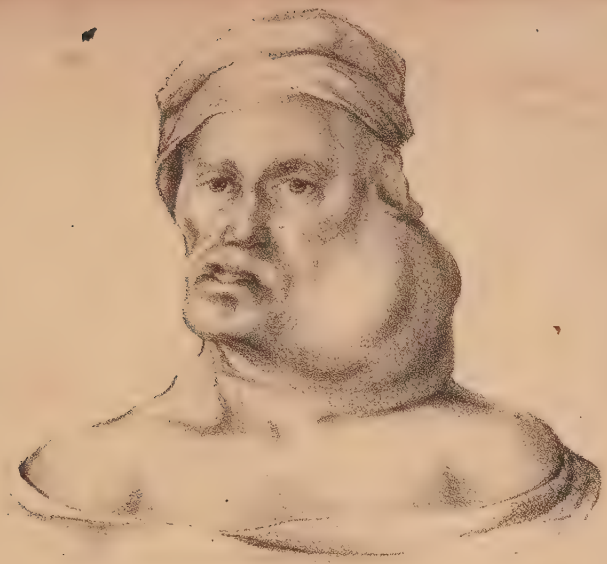

Fig. 2.

Forster & C°. lith. Dublin.

Dublin. Hodges, Smith & C°. 104. Grafton. St.

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deepest in shading, with a yellowish hue intermixed; and numerous large veins traversed its surface. The superficial parts of the tumour were painful to the touch and eminently elastic, while behind its composition was solid, firm, and unyielding, particularly that portion of it which lay in contact with and overlapped the mastoid process. From the solid nature of the tumour behind, remarkable changes followed; by its increase in this direction and the opposition afforded by the mastoid process, the condyle on the affected side was dislocated forwards, so that the distortion of the countenance was remarkable. The patient could not open the mouth more than a quarter of an inch beyond what is represented in the drawing, and he could not shut it closer,—as a consequence, the saliva was for ever streaming over the lip and cheek. By the unyielding mass, resisted posteriorly and mesially, the tongue was partially protruded, and could not be retained in the mouth. The trachea was considerably pressed upon, and respiration embarrassed, and the power of swallowing solids almost precluded. The circulation in the common carotid artery on the affected side was exceedingly feeble, indeed nearly interrupted altogether, from a similar cause. As premised, no operation was warrantable, and the man returned to the country, where he shortly after died, worn out by irritation and agonizing pain.

The same early operative interference, which in the foregoing cases I have contended for, where *operation is applicable at all*, becomes, if possible, *more imperative in that class of malignant diseases to which I have before directed the attention of the Society*, under the title of the "*Cancerous degeneration of warty excrescences.*"

ON THE CANCEROUS DEGENERATION OF WARTY EXCRESCENCES, AND ITS TREATMENT.

The association between warty excrescences and cancerous degeneration has not, I conceive, met with all the careful attention from writers to which it is entitled—entitled on two grounds: first, from the frequency of the one as a sequence of the other; and secondly, from the inveteracy of the connexion when once established.

The following cases afford an exposition of the various changes brought about, from the apparently innocent verruca to the cancerous ulcer, and this again to the contamination of the system, and the springing up of encephaloid disease. To illustrate still further this subject, I shall lay before the Society numerous casts and drawings, accurate representations of

the respective changes as they were effected in each individual case, and shall conclude with a few practical deductions, warranted from the premises obtained.

Case V.—*Warty Excrescence on the forehead, degenerating into a large Cancerous Tumour, and followed by the Encephaloid form of the disease at the angle of the jaw.*

Anne Sullivan, aged 52, applied to me for relief in May, 1850, being then suffering severely from a large, painful, ulcerated tumour over the right eye. The history which she gave goes to prove that a wart, about the size of a pea, existed above the eyebrow ever since she was a child; that eleven months previous to her seeking my advice, it became painful and itchy; that she frequently tried to pick it away in little pieces, and often pulled long shreds out of it, the separation of which was always attended with sharp pain, lasting frequently for a lengthened period after, and usually with a smart flow of blood. About this time, too, the bulk of the swelling began rapidly to increase, with a red margin round it, and soon its appearance was altered in every respect from the original condition; the warty excrescence was cast off, and a small ulcerated surface, about the size of a shilling, lay exposed, which was elevated, hard, and circumscribed, yielding a thin yellowish discharge, and characterized by persistent pain of a pricking kind, subject at different times to various degrees of intensity. Day after day the tumour continued to enlarge, spreading its base by the accession of fresh nodules, which never rose to any greater height than half an inch above the surrounding healthy parts; the integuments thus appeared to ulcerate around, the destroyed part being supplanted with firm elevations, which, in their turn, coalesced, became convex, and in this way preserved the nodulated character of the entire surface. Thus the base extended widely in all directions —upwards on the forehead, inwards and beyond the mesial line, externally, towards the temple and down upon the cheek, and inferiorly so as to involve and depress the upper lid, and compromise vision in the right eye. The extent of ulcerated surface measured round its circumference ten inches. This amount of disease, then, was hurried into existence in the incredibly short period of eleven months. The character of the sore was peculiarly cancerous, the surface being nodulated, hard, and firm almost as cartilage, yielding a discharge thin, yellowish, and watery, profuse in quantity, and emitting the peculiar odour so pathognomonic, and readily recognised by the surgeon accustomed to meet with this form of disease. Eight

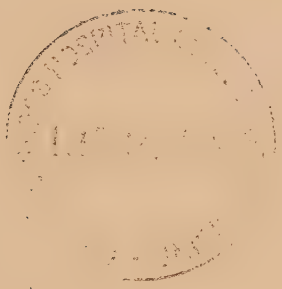


Fig 1

Fig 2

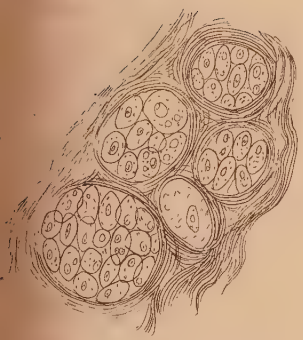


Fig 3.

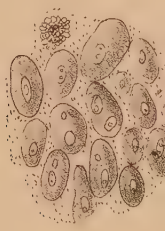


Fig 4.

Forster & Co lith Dublin.

Dublin. Hodges Smith & Co 104 Grafton

months after the commencement of the disease in the forehead, a tumour began to form in the upper part of the parotidean region; it gradually came on, at first attended with most severe darting pain through the ear, up along the side of the head, and forwards towards the face, and thus averting sleep for nights, even before there was any appreciable swelling. At this time the pain she states to have been most agonizing, but it gradually declined as the bulk of the tumour was augmented. The size of this secondary growth obtains in magnitude about that of a split orange, and from its osseous boundaries its outline is not regular; it is also somewhat compressed transversely about its centre, and the upper part is more of an ovoid, while the lower portion is lobulated and spread out. The cast taken from the patient most faithfully represents the appearances of the primary and secondary formations, and the coloration of each has been very carefully preserved. (See Plate IV., Fig. 1, copied from the cast.) From a careful consideration of the phenomena attendant on this tumour, the rapidity of its growth, the character of the pain, the elastic sensation elicited by the touch, the colour of its surface, I concluded it was of encephaloid formation, and referred it to that class. With anxiety I watched this creature for some time, and in about five weeks after the cast was taken the most prominent part gave way, and a fungus shot out, never attaining beyond the size of a large fig, and emitting from its centre, at intervals of a few days, repeated arterial hemorrhages, some of them to the extent of several ounces. She struggled on in this way for two months, when she died from the debility consequent upon those frequent losses, and I regret to say I could not obtain any dissection of the body. I examined the structure of the original tumour several times with the aid of the microscope, which most clearly proved its cancerous nature. A fine section of it showed the basis to be made up of fibrous tissue, having embedded, as it were, in its structure numerous nucleated cells, many with nucleoli. The addition of acetic acid had no other effect than that of rendering more conspicuous the nuclei at the expense of almost the dissolution of the cell-wall. On subjecting a piece of the tumour to pressure, a juice could be expressed from it, yielding an abundance of cells, similar to those visible in the section, and by the addition of acetic acid were acted on with a similar result. Numerous granular bodies were also floated through the fluid. Here is a drawing of the microscopic appearances of the primary tumour, showing the arrangement of the fibrous tissue, cells, and granular bodies, which I have adverted to. (Plate

IV., Figs. 2 and 3.) The next point to be cleared up in this case was, carefully to ascertain the nature of the secondary formation, the tumour behind the jaw, and to trace out the affinity between it and the antecedent true scirrhus, by microscopic examination. After the tumour had burst, and the fungus shot out, I introduced a grooved needle into its structure, about an inch deep, then rotated it between the finger and thumb, and on withdrawing it the groove was loaded with the morbid product. This was not uniformly of the same consistence; some parts were harder than others. On placing a small portion of it under the microscope, every atom absolutely teemed with a profusion of nucleated cells, supported with the most delicate filamentous tissue. On examining some particles firmer than others, the cells were much the same, the only difference being in the compression of the cells, while those of the softer portions approximated more closely to a sphere. There were no caudate corpuscles present in this specimen. The drawing exhibits the appearance of the cells, represented under the same power as that used in the first picture. (Plate IV., Fig. 4.)

Case VI.—*Warty Excrescence beneath the chin removed by operation; Return of the disease ascribable to the cause of contamination being persistent, and the springing up of Encephaloid Cancer in the neck.*

Jane Murphy, aged 70, a healthy-looking countrywoman, who had been mother of ten children, consulted me in January, 1849, for a small tumour situated beneath her chin, in the mesial line. She mentioned that a wart had been there from childhood, but that within the last four months it had lost its form, the irregular surface becoming smooth, its size larger, and extremely painful. She had been in the habit of frequently pressing the tumour, endeavouring to allay the pain, which often induced it to bleed, and then the annoyance, in a measure, subsided. When I first saw this patient the tumour was about the size of a marble, smooth and polished on the surface, with a semi-transparency over it, of stony hardness, and quite movable. Taking these features into consideration, together with the characteristic pain, always of a lancinating nature, the altered aspect of the part, and the period of life at which it was brought about, I was led to the inference of malignant degeneration being set up in this change, and urged its immediate removal. Coexisting with this suspicious tubercle, there was a warty growth, larger than a pea, a little above the chin, and to the left side. (See Plate V., Fig. 1.)

Fig 1.

Fig 3.

Fig 4.

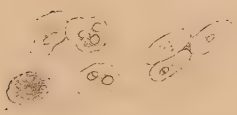


Fig 5.

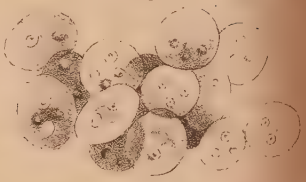
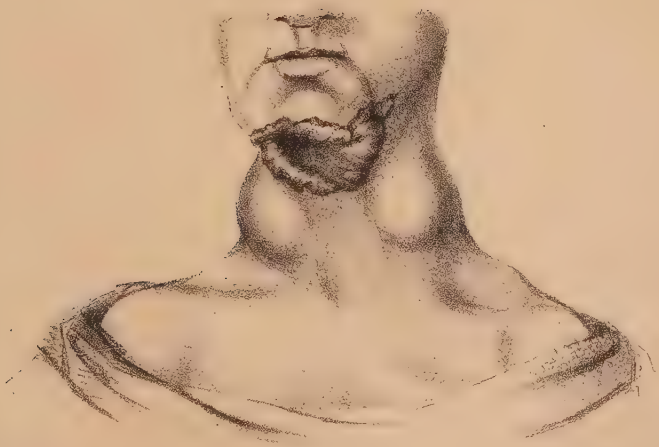


Fig 2.



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This, she said, also existed from infancy, never gave her any uneasiness, and exactly resembled the one beneath the chin, previous to the alteration above noticed. I removed the tumour beneath the chin in January, 1849, by two elliptical incisions, their long axis from above downwards, cutting far wide of the diseased structure, and deeper by several lines than the bed of the tumour; the wound inflicted readily admitted of being brought together from side to side, and the edges retained so by two fine needles and the twisted suture; compresses were placed beneath the ends of each needle, with a double object, to bear off any undue pressure, and to act as on the principle of the quill suture in supporting the lips of the wound at their very deepest line in contact, and thus taking the strain off the needles. So effectual was the support and apposition afforded, that union by the first intention was constrained almost through its entire track, the lower part only suppurating. In ten days after being cut, the wound was altogether healed, and the patient went to the country to her friends. Previous to her going home I urged the removal of the wart above the chin, but to no effect; she would not submit to have it done. During nine months after the operation she remained free from disease, and satisfied that a cure had been effected; about the end of this time the wart, which had been permitted to remain, began to spread and get painful. The cicatrix resulting from the former operation became tender, tumid, and ultimately gave way by an ulcerated fissure, which rapidly grew wider, yielding a profuse ichorous discharge. The destructive action progressed for about a fortnight, when a fungous growth spread around the sulcus formed in the first instance, assuming the shape of a mushroom, and the size of a crown-piece, its margin being turned over so as to rest upon the sound skin. (See Plate V., Fig. 2.) She came up to town again for my advice, and I declined interfering by operation; the grounds of objection being chiefly founded on the presence of a deep sinus leading backwards towards the line of lymphatics, parallel and beneath the anterior margin of the sterno-mastoid muscle. Again, the root of the disease was struck so deep, and the width of the contaminating base so widely spread, that even the most expert operator could not be satisfied that the entire was removed. Palliatives were again ordered, and she returned to the country. For many months the disease very slowly increased, but the warty excrescence was very considerably augmented, its surface having ulcerated, and the same process spread its margin, until ultimately it joined the disease, shooting upwards from beneath the chin,

the two having coalesced and become inseparably united together. During the last four months still further changes had been added: not only had the original manifestation of the disease been progressive, but two additional tumours were formed, situated one on either side of the neck, and in the line of the absorbents, manifestly of encephaloid nature. (See Plate V., Fig. 2.) Their springiness and elasticity, their coloration, and above all, the microscopic examination of their contents on exploration, pointed to, and confirmed the opinion of, their being true cephaloma. In this miserable state she endured, the gravity of the symptoms having been greatly increased; pain giving rise to the most intolerable suffering, the features being haggard and pinched, and the skin of a dull ochrey colour; debility and emaciation having made rapid progress, and all the functions of the economy more and more becoming implicated in the deteriorating influence of the disease. In this deplorable condition (in December, 1851), she went back to her family in the country to await her final release from suffering, which, to all certainty, was not far distant. Here is a cast, accurately showing the condition of the parts previous to operation in January, 1849; and here is a second, graphically illustrating the changes which have been brought about from the period of nine months after the operation, when the disease appeared in the cicatrix, with all the progressive changes up to the then date (January, 1851), an interval of fifteen months having elapsed. The painting of each has been most truthfully executed (from them the drawings referred to have been taken). I have also preserved these microscopic drawings of the primary and secondary tumours as they appeared. Here is one representing the appearance of the tumour that first showed itself beneath the chin. It exhibits a number of true cancer cells, scattered everywhere through a fibrous basis; some separate cells are also seen detached. (Plate V., Figs. 3 and 4.) This second drawing shows the arrangement of the encephaloid tumours which sprung up beneath the mastoid muscles. The structure seemed entirely composed of myriads of nucleated cancer cells, very closely resembling the secondary formation in the case of Sullivan; inasmuch as there was no caudate corpuscle in this specimen either, and the cells were held together by the finest areolar tissue. (Plate V., Fig. 5.)

Case VII.— *Warty Excrescence behind the right ear removed in the ulcerated stage by excision, exemption from disease for eight months; Replaced by a large Encephaloid Tumour behind the angle of the jaw, and causing Paralysis of the portio dura of the seventh nerve.*

Ellen Fitzpatrick, aged 65, consulted me in March, 1850, for a large bleeding wart, placed above and behind the right ear; it was attended for some time before with repeated hemorrhages. She said it had been there for many years, never created any annoyance until about six weeks before seeking my advice. She referred the great change which had taken place in it to a bruise occasioned by a water-pail that she had been in the habit of carrying on her shoulder. Shortly after this "the wart became very sore," and soon the pain set in of intense character, darting up along the side of the head, down towards the angle of the jaw, and represented by the sufferer as "indescribably severe." On examining the part a highly irritable and inflamed base surrounded the tumour, which was of about the size of a shilling, uneven on its surface, and elevated about half an inch; it was hard to the touch, and bled upon the slightest pressure from an ulcerated line partly round it, and through its structure.

I removed the tumour with great care, cutting far wide of the base, and, as I thought, most effectually. Two arteries sprung, which required ligatures; and so free had been the excision that the edges of the wound would not permit of being brought together, yet it healed perfectly in three weeks by granulation, a soft yet polished cicatrix being left. For a period of eight months she continued quite well and exempt from all annoyance. After this time she began to complain of uneasiness behind the angle of the jaw on mastication; by degrees the part became tense, and then she felt a small tumour there; this, at the time, she believed originated from cold, and it did not alarm her, more particularly as she often relieved the urgent pain by repeated stuping. However, the swelling continued to increase so as to become perceptible; and when it attained such magnitude as to fill up the angle of the jaw, she began to suffer from the effects of paralysis of the seventh nerve on the right side. Day after day the tumour extended itself—particularly in the direction of the site of the original warty excrescence. At this time she again sought my advice, and then the case was truly a lamentable one,—a tumour, considerably larger than an orange, filled up the space between the angle of the jaw and the mastoid process, lost upwards

towards the zygoma, passing downwards and encroaching on the neck, extending behind the ear, and implicating the structures attached to the occipital bone; uneven, projecting, and lobulated on its surface; fixed, irregular, and immovable at its base. The colour of the tumour was very remarkable, and strikingly indicative of the condition so frequently associated with the proper circulation of the true cephaloma,—large veins traversed it in every direction, some of them lying, as it were, in grooves embedded on its surface; while again, numerous vessels marked the coloration in a peculiar way, constituting what might be called a number of vascular spots, from which capillaries radiated in every direction for a short distance, and ultimately breaking up in a fine ramiform distribution.

Here is a cast and drawing (see Plate III., Fig. 2) taken from the patient at this time, which most accurately show the position, form, and colour of the secondary tumour; also the paralytic condition of the corresponding side of the face, from the implication of the motor portion of the seventh nerve with the morbid product. The face is greatly distorted, and the right side is very remarkable when contrasted with the other. Upon the forehead the integuments lie flat, smooth, and at rest, there being no wrinkles or motion as on the left side. A vertical furrow is placed nearly in the centre, dividing the bulging of the muscles on the left side from the uncontracted state of those on the right, and the slip of the occipito-frontalis muscle from a remarkable prominence at the junction of the nasal bone with the frontal on the left side. The power of closing the eyelids of the right eye was lost; they remained always open; when asked to close the eye forcibly, although she made the attempt, there was not the slightest motion observed in the eyelids. When the eye was at rest, and the patient using the sound one, about half the pupil remained visible, but during sleep was completely concealed behind the upper lid. The conjunctiva of the eye was in a chronic state of inflammation, and exhibited through a lens a perfectly villous surface, permeated, in every point, with innumerable vessels. On close examination the cornea looked dull, but at a little distance presented a borrowed brilliancy from the abundant flow of tears which were constantly secreted and pouring over the cheek. The lower eyelid drooped a little, and the mucous membrane lining it presented the same vascular arrangement as that covering the sclerotic coat. The right nostril lay flat, collapsed, and not distended on a deep inspiration, but rather closed altogether, and the nose pointed towards the left side. When she blew or attempted to whistle, the air

escaped by the right angle of the mouth, the right buccinator not at all corresponding in action with the muscles of the left side, nor with that of the muscles of the chest and neck, by which the air was expelled. In mastication, the food collected in the right cheek, between it and the teeth, and the patient could not push it from its place without the assistance of the tongue, and frequently of the fingers; the saliva constantly flowed out at this side, and, when drinking, part of the fluid likewise escaped.

When the disease attained the size represented in the cast and drawing, it did not at all increase so rapidly as at first; and during the following thirteen months I had repeated opportunities of watching the course of the disease; a part of it ulcerated, a fungus shot out, and was attended with small hemorrhages. I regret to say, in January, 1852, this creature took typhus fever from an individual in the same lodging-house, and died on the tenth day. I could not obtain permission for an examination of the parts.

It may be said, the cases of cancerous degeneration which I have brought forward all occurred in patients of advanced life. In most of the instances which have fallen to my lot for observation, it was so; but I have also seen the change brought about in early age, which the following cases will testify:—

Case VIII.— *Warty Excrescence on the forepart of the neck, above the sternum, removed by the knife; no return of the disease.*

Maria Williams, aged 19, a particularly handsome girl, of dark complexion, consulted me, in February, 1849, for what appeared a very irritable wart, situated on the fore part of the neck. She mentioned, it had been there as long as she could remember, but that latterly it had increased and become very painful, which she attributed to the pressure of her dress. The tumour, when I saw her, was of the size of a filbert, hard and irregular on the surface, which, at the highest point, was elevated about a quarter of an inch above the surrounding healthy skin; it was quite movable, placed about the centre of the depression situated above the sternum, and three-quarters of an inch from its upper margin.

The patient suffered great uneasiness in her mind from the rapidity of its increase, and the "dread of cancer," as her mother had died of that disease, and great depression and annoyance, from the constant pain present in it.

Mr. Tagert, whom I consulted in the case, agreed with me that it was better to remove the part, a proposition in which the patient most readily acquiesced. I did so by two incisions,

one on either side, and wide of its base, meeting above and below; and then, by a few touches of the knife, lifted the tumour, in its perfect integrity, from the subjacent cellular tissue. The lips of the wound were brought together with two fine needles and the twisted suture. Union by the first intention was nearly accomplished on the fourth day, and in less than a fortnight the part was healed altogether. During the many years which have elapsed, I have several times seen this young woman, and up to the present date there has been no return of the disease, either in the cicatrix or elsewhere. I regret to say I have mislaid the microscopic drawing of the tumour cut out in this case, which I made most carefully; and more particularly so as bearing on a question about which I think a good deal of uncertainty still exists. From my notes, however, the following are the particulars:—The specimen yielded epithelial scales in various conditions and stages; some compressed together, forming laminæ, whilst those deeper assumed a somewhat square form; some of them a caudate shape; around the base there were other cells, which I at once pronounced to be cancer cells. When separated and broken up, they did not at all seem disposed to run together; they were nucleated, some with nucleoli, which, on the addition of acetic acid, were rendered more distinct, and the cell-wall was nearly dissolved; while the other cells resisted its action with impunity. I am quite sure I was not led astray here by an appearance that frequently takes place, namely, the enlargement of the epithelial cells from endosmosis.

Mr. Wardrop records a very remarkable instance of this cancerous degeneration of a wart occurring in a subject much younger than in the case which I have just related. "I had an opportunity," writes this eminent pathologist, "of seeing an example of a true cancerous sore in a girl about twelve years of age, and it is the only case of the kind which has come to my knowledge. It appeared on the lower part of the abdomen, and began in the form of a black wart on the skin. The wart ulcerated, and the surrounding skin was gradually destroyed, so as to form an immense ulcer, having all the characters of a true cancerous sore, which at last destroyed the child"[a].

[a] Wardrop's Observations on Fungus Hematodes, p. 189.

HOSPITAL
MEDICINE

Fig 1.

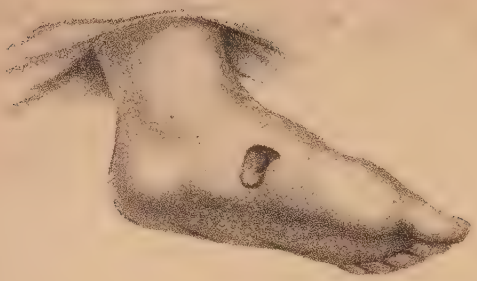
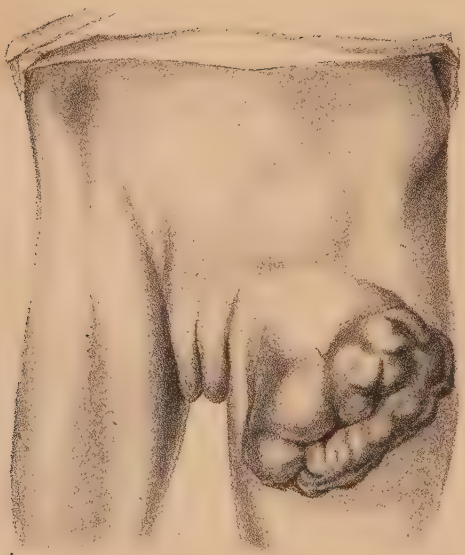


Fig 2.



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Dublin. Hodges Smith & C.o 104. Grafton St.

Case IX.—*Warty Excrescence on the inner side of the foot, removed by operation; followed by the generation of a large Encephaloid mass in the groin.*

The supervention of fungus hematodes after the removal of a large wart from the inner side of the foot, is well exemplified by the following case, which occurred in our hospital some time since:—Mary Murphy, aged 28, admitted into Mercer's Hospital October, 1846, being the second time the same year. In the preceding February she was received into the house for the removal of a large, painful wart, fully the size of a half-crown piece, and situated on the inner side of the left foot (see Plate VI., Fig. 1). It occasioned her great pain, and was so irritable that even a stocking could not be worn over it, and it was deeply ulcerated round its base. At this time there was no evidence of internal disease, and the lymphatic glands of the extremities were neither indurated nor enlarged; therefore Mr. Tagert removed the part, and without difficulty, for it had no deep attachment whatever; it was quite loose, and readily floated on the surface from the slightest touch. The wound quickly healed, and in three weeks she returned to the country. Her second admission, as above dated, was nine months after this operation, when she was received with far advanced encephaloid disease in the groin of the same side (see Plate VI., Fig. 2). The history which she gave of the tumour in the groin is as follows:—

That for five weeks after her return home—two months from the period of the operation—she was free from all disease; that exactly at this time a kernel appeared in the left groin; it continued to increase for a month, and attained the size of a small apple, when it remained stationary for a short time. Up to this period there was very little uneasiness in the part. After this the tumour began again to enlarge, with a "bursting sensation" in it. During the following months her sufferings were greatly augmented, the tumour widely extending itself in all directions, irregular and nodulated on the surface, and highly sensitive. At this time, too, just before admission, the most prominent part burst, from which she lost a quantity of blood. In this state, then, she was received, nine months after the operation, the tumour being larger than the clenched hand, accompanied by darting pains occasionally through it; but she refers an indescribable sensation of tension being always located in the upper half of it; and here, too, was a black spot, marking the site from which the hemorrhage had proceeded a few days before.

November 10th. Since her admission into hospital, the increase of the tumour has been most rapid; it is now enormous, measuring ten inches and a half transversely, and seven and a half from above downwards. Its colour is also greatly altered, being now of a dark purple and reddish hue all over. Its surface is irregularly lobulated and deprived of skin, with the elevations coated over by a semi-opaque fluid, and the depressions containing unhealthy watery pus. The constitution is sympathizing acutely with this mass of local disease. The pulse is never under 120; she has at intervals during the night profuse perspirations; her countenance is haggard, and of a yellowish hue; and all appetite is gone. One point in the upper part of the tumour is far darker than the rest, and from which point two ounces of venous blood trickled the evening before. There has been no return of the disease on the foot, but the cicatrix is very hard and firm.

13th. There was hemorrhage last night to about two ounces, but it was readily restrained by a few dossils of lint steeped in oil of turpentine and finger pressure.

18th. Had profuse hemorrhage last night; she lost nearly a pint of dark blood, to-day she is greatly exhausted, and bathed in sweat; her pulse weak, yet throbbing, and 130 in the minute; the tumour is quite black and turgid from where the blood flowed last night, and all its lobulated and broken-up surface seems a mass of sloughs; she does not complain of pain now.

19th. Is much depressed to day; at 6 o'clock in the evening bleeding began again, at first slowly, and was staunched by pledgets of lint dipped in muriated tincture of iron. In two hours after, it broke out afresh, and was perfectly uncontrollable. At this time the bleeding was frightful; it issued out in large bursts from the pultaceous, disorganized mass; when pressure was made over one point, it welled up as rapidly from under another lobe of the fungus, and so on until death threatened by hemorrhage; she was waxy pale, with violent jactitation of the arms, profuse cold sweats over the entire body; screaming for the windows to be opened, and for the admission of air. In these efforts at length all motions ceased, and though there was no appearance of life, yet the blood continued to flow for a few seconds longer, when the pulse forsook the heart, and then, death.

On examination of the body, a tumour as large as a small melon, of the same nature as that in the groin, filled the iliac fossa of the same side, intimately attached to the fascia, and implicating the muscles in this region. The iliac artery and vein

ran through its base, and below Poupart's ligament the femoral artery and vein were surrounded by the encephaloid structure situated there. This pathological condition may account for the fact of the total uselessness of pressure over either of the trunks in arresting the fatal hemorrhage. On slitting up the artery and vein through their entire extent as they traversed this diseased mass, I could not, by the closest examination, find any solution of their integrity; vessels of considerable size, both arteries and veins, however, could be discovered through the structure, with their opened up and patulous extremities. These were very numerous, and evidently the source from which the blood issued in such quantities. The patulous condition of the arteries, as well as the veins, I ascribe to the matting of the coats of the vessels with the surrounding tissues, and thus neutralizing their contractile power. The softer parts of the tumour on section exactly resembled the brain in a state of decomposition.

Case X.— *Warty Excrescence on the inner side of the knee extirpated, and followed by Fungus Hematodes in the groin on the same side.*

The late Mr. Palmer, of this city, had a case very analogous to the one just particularized, a short time before under his care in Mercer's Hospital. The patient was a young woman, only twenty-four years of age; she had a flat, painful wart on the inner side of the knee; it was there for years, but having become very irritable and ulcerated, and bleeding from the least injury, she solicited for its removal; it was taken away by the knife, and the part healed favourably. She returned to the hospital in five months after, the glands in the groin of the same side being enormously enlarged, and all the structures in the inguinal region participating in the encephaloid degeneration. This creature died before the end of the seventh month, after operation, of repeated and profuse hemorrhages.

Case XI.— *Warty Excrescence on the cheek, imperfectly excised, followed by replacement in the cicatrix, and afterwards successfully extirpated.*

Mary Purcell, aged 52, admitted into Mercer's Hospital, April 13, 1854. She states that a "wart" had been on her right cheek for many years; that about two years before the above date, the part became "very painful, with darting stings in it." So troublesome had it become, that she applied to a surgeon, who at her urgent request removed it by the knife. The part healed, but in six months after this operation a somewhat

similar growth made its appearance in the cicatrix; this new formation was more painful and tender than the original one, and the painful sensibility of it increased until her admission to Mercer's Hospital. When she came under my care the tumour was not larger than a small marble, and situated in the centre of the cicatrix resulting from the operation performed before. It was an elevated tumour, about half an inch above the surface, with a persistent, dull pain, and occasional darting stings through it. On the 19th of April I removed the entire by two elliptical incisions, carried far wide of the hardened base, sweeping away the irregular jagged cicatrix resulting from the former operation, and having executed all satisfactorily, the edges of the wound were brought together and maintained so by two needles and the twisted suture[a].

22nd. Removed the needles, and left the twisted thread, steadying it in its position by collodion.

24th. Took away the threads, and the edges of the incisions were most accurately united throughout.

26th. So perfect is the union, scarcely a trace of the line of incisions. On the 6th of May the patient was dismissed perfectly cured.

It affords me pleasure to state that this patient has remained perfectly exempt from any return of the disease in the cheek or elsewhere, up to the present time, January, 1856. At this very date she lies in hospital, owing to a severe wound running into ulceration, over the right tibia, caused by accident. On the closest examination of the cheek, a fine line or seam is merely perceptible, marking the extent of the wound made by me.

Case XII.—*Large Warty Excrescence, covering several inches over the lumbar region, successfully operated upon.*

A gentleman, aged 58 years, consulted me in November, 1854, relative to a large warty excrescence situated over the left lumbar region; it had existed from childhood, and for many years remained the size of a small bean; however, during the last three it began to enlarge slowly, to spread out, and latterly to expand over the healthy integuments like a mushroom; pain likewise was a constant attendant, and gradually increased with its growth; its surface was uneven, lobulated, and around its base was a fine line of ulceration, yielding a fetid ichor; on carefully examining this tumour, which now attained the

[a] For the most effectual method of applying the twisted suture, see Dublin Quarterly Journal, February, 1856, page 34.

size of a crown-piece, but of an oblong form in all its bearings, I at once decided upon excision, but hesitated about its immediate performance, as diffuse inflammation was raging as an epidemic, and seized upon almost every case touched with the knife. The gentleman, by my directions, returned to the country. In the middle of December he again came to Dublin, and on the 15th I removed the tumour by very free incisions, their long axes being oblique in relation to the body. My intelligent pupils, Mr. Richard Danniell and Mr. Simmons, the latter (I deeply regret to say) since dead, assisted me in this delicate operation. By careful dressing and constitutional management, all irritation was subdued, and a reparative process set up and preserved to the healing of the part. The gentleman returned to the country on the 12th of January, 1855, perfectly cured; and a few days since I had the pleasing gratification to learn that he remains entirely free from any return of disease, with his general health far better than it had been for years before.

Now these cases which I have given are examples of only one condition of the skin preparatory to ulceration and malignancy; that is, where there exists an indurated warty tumour; and this I conceive to have a cancerous tendency *ab initio*. The small growth may be unproductive of inconvenience for years, until irritated, as illustrated in many of the cases which I have adduced; then the characteristic pain, sharp and lancinating, never entirely deserts it; ulceration sets in, making breaches around its base, and proceeds to the detachment of the warty surface. During this time a thin fluid exudes from underneath; hard, firm granulations are thrown up from an indurated base, not rising very high, yet presenting a mammillated surface, far denser than the interior of the projecting nodules. The destructive process, which I have endeavoured to portray by the foregoing cases, presents to the inquirer two very striking characteristics, and essentially belonging to it—first, that when once the ulcerative process is set up, there is never any amelioration, ever so temporary, no attempt at cicatrization; and, second, the great liability of the appearance of encephaloid disease, either in the site of the original tumour, or in the line of the absorbents returning from its position. Here, then, are two marked differences as to results between it and the condition to which the term *noli me tangere* is applied, and to the *destructive ulceration* most accurately described by Dr. Jacob. Of this latter disease I present to the Society this highly painted cast, to contrast with those I have already ex-

hibited. It shows well the characteristics of the disease, as recorded by that gentleman. In this instance, though nearly half the scalp was destroyed, though inroads had been made by the disease to a considerable extent on the side and posterior part of the neck, the ear nearly detached, large vessels exposed, coated by small granulations, and sealed up against the passage of blood—yet, I say, with this amount of ulceration and death of parts around, the neighbouring glands did not participate in or suffer contamination.

In the cases Nos. v., vi., vii., xi. and xii., the germ of disease lay, as it were, innocuous; its malignanttendency did not manifest itself until a very advanced period of life, at the respective ages of 52, 70, 65, 52, and 58;—while in the cases Nos. viii., ix., and x., it was ushered into existence at a much earlier age—19, 28, and 24; while in Mr. Wardrop's case, the subject, a little girl, was only twelve years old.

It is remarkable, too, that once the ulceration was fairly established in the primary tumour, true encephaloid disease rapidly sprung up, either in its site or in its immediate locality, with the exception of cases Nos. viii., xi., and xii., successfully extirpated. Again, in every instance which I have recorded, all the changes were brought about more speedily, and death followed more quickly in proportion to the age of the patient.

The inferences deduced from the results of these several cases relative to treatment point to the practical precept of early extirpation; we have evidence of its beneficial result in cases Nos. viii., xi., and xii., where, though ulceration with its characteristic attendant symptoms had just manifested themselves, the parts were excised, the wounds healed, and there has been no return of disease, though a period of several years has elapsed.

In cases Nos. vi., vii., ix., and x., the operation, I conceive, was had recourse to after the lymphatics and capillaries were charged with the product of the cancerous alteration; and though, in some instances, the wounds readily healed, yet, in a short time, the secondary results, the effects of the absorption, manifested themselves in the form of encephaloid disease. So firmly convinced am I of the line of treatment to be adopted in these cases, I would advise that all warts, when situated on the face and elsewhere, should be removed by the knife as early as possible, no matter how youthful the patient may be, as they all have a tendency, in advancing years, to degenerate in the manner which I have endeavoured to represent and elucidate.

Art. XII.—*Observations on the Signs of Accumulation in some Thoracic Diseases*[a]. By Alfred Hudson, M. D.

Much of the present perfection of physical diagnosis is due to the study of the more indirect and remote signs of diseases of the chest. In some of these diseases indications of the greatest value are derived from alterations in the form or volume of the chest; in some, from the compression or displacement of organs; while in others, neither of these have been much studied, though occasionally they might be expected to be present and available as aids to diagnosis.

I would offer a few observations on the occasional occurrence of general dilatation of the side and its accompanying phenomenon—increased resonance on percussion—in pericarditis and pneumonia; using the term 'general dilatation' in contradistinction to local or circumscribed swelling or bulging, of which we find more frequent mention in authors; and increased resonance synonymously with tympanitic clearness, as defined by Dr. Walshe:—"The note clear, the duration considerable, the resistance of the walls tense, drum-like, highly elastic." This is the percussion sound of the upper portion of the chest in the commencing stage of pleuritis with effusion, before the quantity of fluid is become so considerable as to interfere with chest vibration, and cause the sound to be tubular or amphoric; this is also the sound in the bronchitis of the young, and in emphysema with dilatation, in both of which diseases the parietes are rendered tense, partly by the pressure from within, and partly by the heightened action of the intercostals, as would seem to be proved by the exaggerated murmur of inspiration.

In pericarditis the attention of observers has been directed almost exclusively to the signs afforded by the part itself, dulness of the cardiac region, with vaulting or circumscribed distention, and the acoustic sign of exocardial murmur, being those put forward by systematic writers. I am aware of but one published instance of general dilatation ascertained by measurement, and the circular measurement of the left chest exceeding the right by half an inch. In his remarks upon this case[b], Dr. Banks speaks of it as dilatation of the precordial region merely, nor does he mention the existence of any percussion signs remote from the precordial region.

These were first observed by Dr. Graves, and announced

[a] Read at a Meeting of the Association of the College of Physicians, June 4, 1856.
[b] Dublin Hospital Gazette, No. 4.

by him in terms which showed his sense of their importance. The following were the physical signs presented by his patient, a girl ten years of age, admitted into hospital on the ninth day of the disease:—"The left side of the chest appears to the eye fuller, of larger dimensions, and the muscles, as it were, puffed out; this is particularly obvious about the nipple: when measured, no inequality between the two sides can be discovered; percussion from an inch below the left clavicle to the lower part of the cardiac region, also laterally over a space of several inches, is perfectly dull; this is likewise observable over the middle and inferior parts of the sternum and to the right of this bone; whilst posteriorly over the scapulæ, as far as their spinous ridge, and below these bones, it is preternaturally clear. Respiration is exceedingly feeble over the dull parts, but free from râle, and elsewhere very loud. Impulse of heart cannot be felt," &c., &c.

The percussion sounds in the postero-superior portion of the chest continued unchanged till her death, seven days afterwards. The following were the appearances found on dissection:—

"When the sternum was raised, nothing but the pericardium could be seen; to such an extent was it distended as to occupy the mesial line, extending from the diaphragm to within one inch of the fourchette of the sternum, and across to the right side. On removing it from the left cavity of the thorax, the lung was found much diminished in size, pushed upwards, and pressed against the spine and ribs, having lost a great deal of its natural feel, and appearing like a lung compressed by a pleuritic effusion; the right lung was also affected in the same manner, but in a minor degree," &c.

"Although," says Dr. Graves, "it is said in the report that the left half of the chest did not measure more than the right, yet there was an evident dilatation of the former, exactly corresponding to the distended pericardium, which, pushing before it the flexible parietes, formed a well-marked and evident prominence. This likewise rendered the parietes of the superior portions of the left side of the chest more tense than natural; an occurrence sure, for reasons well explained by Dr. Williams, to occasion increased resonance on percussion." He then adds:—"*I am not aware that this consequence of pericarditis has been before described.*"

I some time since met with a case of pericarditis which presented both the above signs of eccentric pressure, but without the confirmatory evidence of a post-mortem examination. The following is a short abstract of my notes of the case:—

R. H., aged 15, well formed, of fair complexion, came under my care on the 5th September, 1853, on the fifth or sixth day of his illness.

When visited, he was lying on his back, breathing hurriedly, with an anxious expression of face, which was pallid and bloated; the pulse small and jerking, 100 in the minute.

On inspection, the left side of the chest appeared rounded and fuller than the right, the precordial region extensively dull on percussion; the heart's impulse was felt over a wide space, and at the close of the first and commencement of the second sound there was a harsh friction murmur, most distinctly audible over the apex.

When he sat up, the percussion sound under the left clavicle, and over the spine and dorsum of the scapula, was decidedly clearer than on the right side, with a sharp, tympanitic character.

On the 6th the general symptoms were improved, but the signs of effusion as before. The side seemed bulged out anteriorly, and the dulness extended as high as the space between the second and third rib. The percussion sound of the clavicle had a more amphoric character than on the 5th, while posteriorly the tympanitic clearness was even more marked. With the assistance of the apothecary in attendance, the chest was now carefully measured, and the left side was found to be fully three-fourths of an inch larger than the right; this dilatation was more marked above the mamma than on a line with it, or below; acoustic signs the same as before.

Under the use of leeches and blisters to the cardiac region, and mercury given in small doses at short intervals, the patient rapidly improved; and on the 10th, ptyalism being fully established, it was found that the two sides of the chest were of equal measurement, the precordial dulness very much diminished, friction sounds audible over the whole cardiac region, and the percussion sound of the upper portion of the side clear, without any trace of its former tympanitic character. In little more than a fortnight the friction murmur had disappeared, and the patient eventually recovered perfectly.

It should be observed that in this case, as in Dr. Graves', there were no stethoscopic signs of compression of the lung, the respiratory murmur being loud and pure in the upper portion of the side. This, however, is not always the case; in two examples I have now to notice the direct backward pressure of the distended pericardium was sufficient, in patients somewhat older than the former, to produce tubular breathing

over a circumscribed space at the angle of the scapula. One of these, through the kindness of my friend Dr. A. Smith, I was permitted to witness, while under his treatment in Sir P. Dun's Hospital.

On admission, this young man, aged 20, presented the signs of pericarditis, with very copious effusion, the dulness extending upwards to the interspace between the first and second ribs, and from the right of the sternum to the left of the mamma. A single friction murmur was faintly audible at the apex, which became more extended, and double, as the fluid was absorbed. At the time of admission, and for nearly a week after, the percussion sound, dull anteriorly to near the clavicle, was posteriorly clear and tympanitic; and while the respiratory murmur was pure over the upper portion of the scapula, for a circumscribed space at its angle it was bronchial, with loud bronchophonia.

It was Dr. Smith's opinion, as well as my own, that these phenomena were produced by the backward pressure of the distended pericardium, and not by pneumonia; and the correctness of this opinion seemed to be proved by their gradual disappearance, *pari passu*, with the diminution of the dulness, and extension of the friction sounds over the cardiac region, as well as by the fact that a careful daily examination failed to detect at any time the signs of resolution, the bronchial respiration being gradually replaced by pure respiratory murmur.

A case very similar to this is reported by Dr. Todd, of London, in the Medical Times of December 18, 1852. On the eleventh day after admission, and when the signs and symptoms indicated increasing effusion into the pericardium, "a new sign," says Dr. Todd, "attracted our attention, and puzzled us not a little. We found great resonance of the lower half of the left side of the chest behind; in fact, it had become tympanitic. The chest was also tympanitic on percussion at the left side in front, and in the lateral region." Two days before death Dr. Todd found that "close to the inferior border of the scapula bronchial breathing of a metallic character was audible over a space about the size of a crown-piece." On dissection, "the quantity of fluid," says Dr. Todd, "exceeded my expectations, and certainly the extent of the dulness on percussion did not justify the supposition that a very large effusion of fluid had taken place; the adhesions on the left side prevented the fluid from spreading on that side, and caused it rather to push the heart back into the posterior mediastinum, and upon the left lung. . . . . So great was the accumulation of fluid in

the pericardium, and so much did it press backwards, that a portion of the left lung was found much compressed and pushed upwards and backwards. The compression was sufficient to produce in the portion of the lung pressed on that condition which Laennec describes under the name of *carnification;* it was but a small portion of the lung that was thus carnified, and that corresponded to the situation in which we heard bronchial breathing."

The stethoscopic phenomena, and the post-mortem appearances in this case abundantly prove the existence of excentric pressure upon the lung and parietes, and render probable the distention of the side, to which, more than to the stomach, I would ascribe the increased resonance on percussion. Whether or not we agree with Dr. Todd, that the sign in question was due to a large stomach in this case, such an explanation is obviously inapplicable in general.

I think that the observed instances, few as they are, warrant us to conclude that in young subjects effusion into the pericardium may produce, not merely local or precordial enlargement, 'bulging,' but active dilatation of the side, and upward and backward pressure on the lung, indicated by increase of circular measurement, and increased clearness of percussion sound, which latter, as in pleuritic effusion, becomes less resonant and more amphoric as the effusion increases,—that in subjects in whom the active dilatation is perhaps less perfect, there may be more complete compression of the lung backwards, as indicated by bronchial respiration at the seat of compression,—that the order in which the signs of accumulation occur is probably precordial dulness and vaulting of this region; dilatation of the superior portion of the side; compression backwards of the lung; extension above the clavicle of the lung, as observed by Graves, or of the distended pericardium, as observed by Walshe; and compression of the heart itself, indicated by failure of the systemic circulation, and, according to some writers, by aortic murmur caused by the compression[a].

In pneumonia, as in pericarditis, the diagnosis is usually derived from the direct signs, and although those arising from the diminution of volume consequent upon some forms of the disease have been noticed by several writers, but little attention has been paid to the opposite state. Indeed, it has been laid down by a high authority that the signs of accumulation do not occur in pneumonia. "In most cases of empyema,"

[a] Markham on Diseases of the Heart, and Walshe, *ut supra.*

says Dr. Stokes[a], "the side is enlarged, but the increase of volume which occurs in pneumonia is not to be appreciated during life." Exactly, too, as in pericarditis, writers have described a local or circumscribed swelling of the part of the chest affected in pneumonia. "In one case," says Grisolle[b], "there was slight prominence (une legère voussure), extending from the first rib to the nipple; here there was hepatization without pleuritic effusion." "In a second case of slight pneumonia, on the fifth day the supra and infra clavicular depressions were effaced, while they were well marked on the healthy side; on the next day the pneumonia had made some progress towards resolution, and the conformation was the same as on the sound side." M. Grisolle considers that these cases prove that the thorax may be dilated at the front corresponding to a hepatized portion of lung; and Dr. Walshe, in referring to them, admits that there does not appear to be any plausible objection to them as demonstrating the existence of *partial* expansion; adding:—"In a small minority of cases I have myself found positive though slight increase of width at the base of the affected side"[c].

I believe that the conflicting observations on this point are to be reconciled by taking into account the existence of different forms of pneumonia, in one of which, at least—that, namely, attended with plastic exudation into the lung—well-marked signs of accumulation are present. The following are the grounds for this opinion:—

First, the remarkable case presented to the Pathological Society of Dublin by Professor Smith, which, we may say, bears much the same relation to the diagnosis of pneumonia as that of Dr. Graves, already quoted, does to pericarditis. In this patient the external signs of enlargement of the lung were, dilatation of the side to the extent of an inch and a half, and downward protrusion of the liver; on post-mortem examination it was found that the diaphragm was pushed down, and the opposite lung compressed, the increase of bulk being owing to deposition of lymph in the air-cells of the lung, constituting that form of disease, since well described by Dr. Blakiston[d] under the term "plastic pneumonia." This case, as Professor Smith observes, places "the fact, denied by many authors, of actual enlargement of the lung beyond doubt."

Second, the occurrence, under my own observation, at dif-

[a] Diseases of the Chest, p. 335. [b] Traitè de la Pneumonie, p. 225.
[c] Diseases of the Lungs and Heart, p. 317.
[d] Practical Observations on certain Diseases of the Chest, p. 268.

ferent times, more especially during the past year, of cases in which positive dilatation of the side, ascertained by measurement, existed with other signs of accumulation, and in which other characters of the disease resembled those of plastic pneumonia: such as absence of the crepitus of the first stage, absence of the rusty expectoration of pneumonia, and rapid solidification, with remarkable chronicity of disease,—all the cases extending over many weeks, several over months. (In this particular they differed from those described by Dr. Gordon is the last Number of this Journal, while in some others there was a marked resemblance.) In three young persons in whom the disease occurred on the left side, this side measured from half to three-fourths of an inch more than the right; and in two of these, in whom it was confined to the upper lobe, the heart was sensibly displaced downwards and to the right, as in emphysema of the same part[a].

In three fatal cases both lungs were engaged,—two of these were gentlemen of previously dissipated habits and broken constitution; unfortunately, no opportunity was afforded of ascertaining the truth of the diagnosis by post-mortem examination; but in the third, which was under the care of Dr. A. Smith, this was done.

Eliza Helson, aged 9, had measles six weeks since, after which cough and dyspnœa supervened, and have since continued. When admitted into hospital, February 19th, she presented the dusky face with dark flush, and the pungent heat of skin of pneumonia; her breathing was oppressed, but not laborious, 36 in the minute; pulse 108, small and feeble. On inspection of the chest both sides seemed to expand equally during inspiration, but the right posteriorly was evidently rounder and fuller than the left; and being carefully measured by Dr. Smith, Dr. M'Dermott, and myself, was found to be fully an inch larger. Both over the rounded part and over the mammary region it gave a tympanitic sound on percussion, so clear, that it was remarked at the time how easily one previously unacquainted with this modification of the percussion sound might mistake the natural resonance of the left side for comparative dulness, from its contrast to the abnormal clearness of the right. Over the lower third, posteriorly and laterally, there was a loose muco-crepitus mixed with feeble bronchial respiration, while superiorly the bronchial respiration

[a] In one of these cases, a young lady, aged 10, both the dilatation and displacement were seen by Dr. Travers, her medical attendant, as well as by myself.

was pure and unmixed with râle; over the spine of the scapula, and under the clavicles, respiration was puerile. Gradually the breathing became more hurried, the pulse more rapid, the cough more frequent, and the expectoration more purulent and copious; while each time that the chest was examined the measurement of the side was found to be less, the percussion sound duller and more amphoric, and the muco-crepitus looser and mixed with gurgling. Ten days after her admission the measurement of the sides was equal, and the signs of cavity in the lower part of the side (cavernous respiration and gargouillement) fully established. She continued much in the same state for three weeks longer, when, on the 22nd March, she was suddenly seized with acute pain in the side and great increase of dyspnœa, and died on the following day.

On dissection, the diagnosis made during life, of plastic pneumonia and abscess in the lung, with recent opening into the pleura, was found to be correct,—the appearance of the upper and middle lobes was exactly similar to that in Professor Smith's preparation and drawing[a]; the deposit which studded every portion of these lobes was contained in cysts varying in size from a pin's head to a horse-bean. On this substance being submitted to examination under the microscope by Dr. M'Dermott, it was found to consist of fibrinous exudation, without any trace of tubercle. The entire lower lobe was converted into an abscess, lined by a smooth pyogenic membrane, and communicating by a small rent with the cavity of the pleura. It should have been mentioned, that three weeks before death signs of solidification had appeared in the upper part of the left side, where some of the same deposit was found in a crude state.

In one of the other fatal cases the course of the disease was, in some respects, similar to the above,—capillary bronchitis supervening on a morbid poison (gonorrhœa); solidification, first of the lower lobe of the left lung, with tympanitic resonance, then of the upper of the right, ending in the formation of a large abscess in the former. In the third case the disease also commenced in the left lung, then attacked the right, the chest becoming dilated and rounded as in emphysema, and everywhere preternaturally clear on percussion; respiration effected entirely upwards and by the diaphragm; the heart was carried down and pulsated under the lower edge of the sternum. It is worthy of remark, that both these patients had ex-

[a] Richmond Hospital Museum, Prep. Bb 1, N. 24, Drawing No. 50.

tensive and obstinate diphtherite of the mouth and pharynx, an indication, perhaps, of the blood crasis which determined this peculiar form of pneumonia.

Circumstances have hitherto prevented my making any observations on contraction of the side from diminished volume of the lung subsequent to recovery. I have no doubt, however, of its occurrence in all cases in which lymph is effused into the parenchyma and areolar tissue of the lung; and I believe that such examples as those to which I have referred would, if uninfluenced by treatment, terminate either in abscess, or in that form of disease attended with contraction which has been described by different writers under the term chronic pneumonia; among others, by Dr. Cotton, in two papers in the London Medical Times and Gazette, March 31, and April 14, 1855.

Art. XIII.—*Practical Observations on Polypus Uteri.* By Robert Johns, A. B., M. B. T. C. D., L. & F. R. C. S. I., Member of the Council of the Surgical Society of Ireland; late Consulting Accoucheur to St. Peter's Parochial Dispensary; Ex-Assistant Master to the Lying-in-Hospital, Dublin; Vice-President of the Obstetrical Society of Ireland; Chairman of the Midwifery Court of Examiners of the Royal College of Surgeons in Ireland; Consulting Accoucheur to the Anglesey Lying-in Hospital, &c. &c.

As there are few symptoms which create so much alarm and anxiety in the mind of the female as uterine hemorrhage, so is there none on which it is more important to possess a correct understanding. Whether the object of the physician may be to calm down those apprehensions, on the one hand, where there are little grounds for entertaining them, or, on the other, to prepare the poor sufferer or her friends for the dread change that may await her: in either case the object can only be attained by him who is perfect master of the subject, and fully acquainted with all the circumstances that might possibly influence its progress and termination. Such information, however, is not quickly or easily acquired, and, therefore, it becomes a duty to communicate to our professional brethren any unusual or anomalous occurrence that might possibly bear any practical relation to the subject, or assist in the establishment of a correct and truthful diagnosis. Such a case I think I had an opportunity of witnessing some time since, and deeming that its perusal might not only be interesting to the profes-

sion, but possibly useful to some of its junior members, I feel little hesitation in publishing an account of it.

Mrs. M., aged 36, of a scrofulous diathesis, some years married, but without a family, was admitted into the Lying-in Hospital on the 31st of May, 1843, having been pronounced by a medical man whom she had consulted to be pregnant, and about to abort. She was very much weakened and blanched from loss of blood, and the countenance had an appearance of malignant disease.

As the hemorrhage still continued very much, a vaginal examination was instituted; but nothing abnormal was discoverable, neither ovum, tumour, ulceration, nor congestion, the uterus was not sensibly enlarged, nor did it appear to contain any foreign body; but its os was very patulous. By means of cathartics, acids, and astringent medicines, together with applications of vinegar and cold water to the vulva, the discharge was arrested; and she left the hospital, relieved, on the 16th of June.

On the 1st of August following she was again received into the institution, in consequence of the hemorrhage having returned in a very severe form. She was then again carefully examined per vaginam, but, as on the former occasion, no cause could be assigned for her symptoms, and she was believed not to be pregnant. About a week after, on making my ordinary evening visit to the ward (no permanent amendment having taken place in her case, in which, from its obscurity, I was much interested), I again practised the toucher, when, much to my surprise and equally to my satisfaction, I found a polypus protruding through the os uteri, having its insertion rather high into the cervix, and at its left side. On the following morning Dr. Johnson (then Master of the hospital), in consequence of my report of the previous night, examined her, but neither he nor I could, at that visit, discover any tumour, nor any disease whatever; the os uteri was perfectly closed. Matters remained in this doubtful condition for about another week, when Dr. Johnson found the polypus in the position as described by me on the former occasion. The presence of the tumour in the uterus being no longer a matter of uncertainty, arrangements were made to throw a ligature around its pedicle on the next day, the bowels having been previously well freed. However, when the time for operation had arrived, it was ascertained that the polypus had disappeared, and the os uteri contracted as before. At first it was supposed that the tumour, which was not to be felt through the walls of the uterus, had been detached, and had passed from the vagina during the action of

the bowels. This idea was very soon dismissed from our minds, in consequence of the same phenomenon having occurred the week previously. She was then ordered to have ergot of rye, which had not any effect, beyond checking the hemorrhage. I then sent her out to drive on an outside car, for a couple of hours, on two consecutive days, over a rough shingly road, with a view of bringing down the polypus again into the vagina, which event took place on the second day; but whether "post hoc vel propter hoc" I shall not venture to say. Immediately on her return from driving we set about deligating the diseased growth; to accomplish which, an assistant made traction with a forceps on its base, it having been found impossible to operate otherwise, as the tumour was felt to be receding quickly into the uterus. It came away with the canula on the fifth day after operation, and was about the size of a billiard ball. This occurred in the second week of September, and Mrs. M. left the hospital on the 3rd of October, but, strange to say, not much improved by the operation,—a very unusual issue after the removal of such bodies, for generally the re-establishment of health is most marked. This fact, in conjunction with the persistence of her former symptoms, and her malignant aspect, before alluded to, led Dr. Johnson to fear very much (as he stated to me) that some malignant disease coexisted with the polypus.

As about this time I left the institution, my official connexion with it having ceased, I lost sight of this female until the 5th of February, 1844, when she visited me at my own house, and told me that, as she was as bad as ever, she had come to consult me, and that she had taken lodgings in town to be under my care. Her symptoms then were as follows :—Bowels confined; health rapidly declining; loss of flesh, appetite, and strength; catamenia profuse, and occurring every three weeks; great hemorrhage at other times, occasionally passing pear-shaped clots, and some long and stringy, a watery discharge with an admixture of whites succeeding to the bloody flux. From her then accounts of herself, and her past history, I had no doubt as to the nature of her case, which a vaginal exploration confirmed. I found the os uteri soft and patulous to about the size of a shilling, and a polypus slightly protruding through it, and growing very nearly from the same part of the uterus as the former one had its origin, viz., the cervix, but with this difference, that it sprang from the opposite side (the right); her pulse was quiet, but weak; and the rectum was loaded with scybalæ. I ordered her some cathartic medicine,

and after its operation a drachm of Bewley's solution of ergot of rye three times a day.

February 7th. The polypus not to be felt; it had receded into the uterus as its companion had done before, and the os uteri had contracted over it, not permitting anything to be passed through without much force. Bowels more natural; hemorrhage less; the solution of ergot of rye was repeated.

9th. Health much improved, but as I believed the polypus to be still in the womb, I ordered ten grains of ergot of rye and two grains of camphor infused in hot water, three times a day, until bearing-down pains, or a gush of water (which last symptom, I collected from her, was always a precursor of the descent of the tumour), should occur—when she had directions to send for me, that deligation might be at once performed, as, from my former experience of her case, I knew that at that stage no time was to be lost.

14th. Confined to bed from influenza (to which disease, when epidemic, patients suffering from uterine complaints are very liable, as I have before stated elsewhere); all medicines previously ordered to be omitted until the intercurrent affection had disappeared.

19th. She had resumed former treatment.

20th. I visited Mrs. M. in consequence of a hurried message, the precursory symptoms having occurred. At 3 o'clock P. M. on that day, with Gooch's double canula, I passed a ligature as high as I could around the pedicle of the tumour (it having descended into the vagina), and then gave her an anodyne draught.

23rd. Bowels confined; to have an enema; polypus not to be felt, as it had again mounted into the uterus, carrying the canula up with it for about one inch and a half or two inches, the os being firmly contracted on it. As she had not any bad symptom, I did not interfere beyond tightening the ligature, and syringing out the vagina, both of which were done daily from the operation until the 24th of February, on which day, at 3 o'clock P. M. the canula and polypus (about the size of a pullet's egg) came away on merely touching the former. Mrs. M. progressed favourably for about twelve hours, when rather smart hemorrhage set in, and as on February 26th it had not yielded to the ordinary mild measures, I had a blister applied to the sacrum, and ordered fifteen drops of the solution of the pernitrate of iron three times a day, which had the desired effect: this treatment I have frequently known to arrest violent uterine hemorrhage, even that from cancer.

From this time she rapidly recovered, and she has enjoyed excellent health ever since, having grown immensely fat, and regained her natural colour and strength.

The points of interest in this case to which I would direct attention, on account of their comparative infrequency, are:—

1. The co-existence of two fibrous polypi in the uterus, both being of a large size.

2. The occasional ascent of both the tumours into the cavity of the womb, so as not to be felt, after a great portion of them had been protruded through its mouth, which was firmly contracted over them.

3. No similar case having been at that time recorded, led to the belief of a spontaneous cure.

4. No increase of size or weight in the uterus, and the absence of all the usual symptoms of the disease except hemorrhage in the first instance; whereas, in the second, they were well-marked, and at once pointed out the nature of the case.

5. The malignant aspect of the patient.

6. The recession of the tumour together with the canula.

7. Hemorrhage recurring after the removal of the second polypus.

1. Dr. F. H. Ramsbotham mentions, as an extraordinary feature, the fact of two polypi having coexisted in the womb of a patient of his, but both were of a *small size*. That, in the case now under consideration, both tumours coexisted, and that the one was not a repullulation of the other is, I think, evident from the fact of the site of each having been different; and from the improbability of the second having gained such a size from the time of the removal of the first, until its discovery, and the non-recovery of the female after the removal of the first.

2. Dr. Ramsbotham has published in the Medical Times for November, 1852, two cases, in which a polypus had receded into the womb, after it had been felt through the os; in one the tumour was very small; but in neither is the insertion into the womb mentioned.

Dupuytren gives a case where a polypus ascended into the womb and descended into the vagina alternately; but, as in Dr. Ramsbotham's case, its origin is not stated; still I conceive it may be inferred from the following extract from his "Leçons Orales," that it grew from the fundus of the uterus:—"It is conceivable to those who know the manner in which bodies growing from the fundus uteri descend into the vagina; for they know that they draw down the fundus with them, even

to cause more or less inversion, and that, after the section of the pedicle, the uterus rises, so that they can no longer feel the point of insertion."

This explanation will not hold good here, as in this case, as has been already shown, neither of the polypi had its origin from the fundus, nor near it. This phenomenon in Mrs. M.'s case had not any connexion with the catamenia. There is, however, as far as I know, no case recorded in which there was a plurality of polypi, and where each ascended and descended as just described.

3. During Mrs. M.'s sojourn in the institution, there lay in the same ward with her a female who had a polypus in the womb, but as it was about to be removed by ligature, it was found detached and lying in the vagina. There are many such cases on record; but authors are not agreed as to the cause of this spontaneous cure. Some attribute it to gangrene,—a very rare cause. Dupuytren in his long practice met but one case. Others, as Levret, say, "that the pedicle of the tumour is strongly compressed by the cervix uteri, as by a ligature;" not probable in this case, as the os was very patulous, and the parts were much relaxed. Others still, as Dupuytren, "that the pedicle is torn by rough handling from too many examinations." He also says:—"There are uterine polypi of a fibrous nature, which are detached spontaneously without the pedicle being softened by gangrene, such as are developed almost immediately beneath the internal membrane of the uterus; hardly have they escaped the cervix, when, their external covering being very thin, they easily break and fall of themselves." Madame Boivin relates some such. Dr. Safford Lee also speaks of them, and thus explains the phenomenon:—"Their neck only contains cellular tissue; it is possible, by some great mental excitement, that the uterine tissue in the first instance, may be made suddenly and powerfully to contract upon itself, and detach the slight connexion between it and the tumour, by drawing up the tissue composing its pedicle into itself; whilst the cellular pedicle may become gradually absorbed, and the tumour detached by the action of the uterus." The last two causes, I think, most likely co-operated in Mrs. M.'s case.

4. The symptoms are not always commensurate with the amount of the disease, as we see in this case that when both tumours were in the uterus there were no positive indications of the disease, whereas, where but one remained, the symptoms became well-marked. Dr. J. H. Ramsbotham has published a case in which the symptoms ran very high, although the polypus was only the size of a hazel-nut.

5. This unhealthy appearance of the face was removed on the ablation of the second polypus.

6. This fact proves how the uterus can sometimes bear with impunity the presence of a foreign body of such a nature.

7. It is very unusual for hemorrhage to occur where the ligature is employed, for which reason it is preferred by many to the knife.

It may not be out of place here to allude to that "vexata quæstio," whence the source of hemorrhage in polypoid disease?

Dupuytren gives no decided opinion on the subject, but says:—"Fibro-cellular polypi are composed of arteries and veins; the former have not a size proportionate to that of the polypus; they are sometimes very large, but nevertheless furnish very rarely blood; they are always placed in the centre of the pedicle, and this disposition explains a very remarkable phenomenon, which is, that the ligature rarely stops the circulation of the blood in the central arteries." In his work, already cited, he speaks of cases in which pulsations were felt in the pedicle, as does also Vacoussin. Saviard states,—"That two very small arteries, and two veins as large as the crural were present in a hollow polypus, whose cavity was full of blood."

Cruveilhier has recorded a case, in which "several great uterine sinuses opened on the surface of the tumour at its apex, from which the blood flowed, which destroyed the patient."

Dr. Lee had a case in which, when pressure "was made on the tumour, blood flowed out from numerous small orifices on its surface."

Dr. Oldham says:—"The bleedings in polypi are from the tumours themselves, and principally from the veins on their surface or pedicle; that sometimes the veins are lacerated, and at others open under the accumulation of blood in them, as they do during menstruation."

Levret "found an artery penetrating into the thickness of the tumour."

Lisfranc "has seen enlarged veins in the pedicle of the fibrous body."

Dr. Gooch says,—"that it comes from the surface of the excrescence, and not the lining membrane of the uterus."

Dr. Burns "believes that the vessels are chiefly confined to the surface, but they, especially the veins, are sometimes considerable, and give a mottled appearance to the surface, and are a source of hemorrhage; at the same time, it is to be remem-

bered, that the blood often comes from the surface of the uterus itself."

Dr. Safford Lee says,—"that the hemorrhage arising in these cases may be attributed to the very vascular state of the mucous membrane at the insertion of the polypus with the uterus; that the veins of the part are the principal sources of bleeding; and where the mucous membrane is abraded, the vascular network which envelopes these growths may add materially to the result; even where the mucous membrane is uninjured, this envelope may materially increase its vascularity."

For the following reasons I am strongly inclined to believe, that in the generality of cases of polypi the hemorrhage does not come from the tumour, but that it is furnished by the lining membrane of the uterus in a state of congestion, especially at the insertion of the growth into that organ; and that such condition is extended to the investing membrane of the tumour, which may also add to the supply.

1. Hemorrhage is a common accompaniment to fibrous tumours of the uterus, when it is not possible that it could come from them.

2. In simple congestion of the uterus, hemorrhage often occurs.

3. When polypi are removed by excision, hemorrhage rarely, if ever, occurs.

4. In this disease the menstrual secretion is not infrequently increased, even to amount, in some cases, to hemorrhage.

5. Congestion of the uterus evidently exists where these tumours complicate pregnancy.

6. Mucous, or other polypi, not larger than a currant, frequently cause alarming hemorrhage, whereas those of large size are not unusually unaccompanied by this symptom. I published a case in the Dublin Medical Press for April, 1851, in which not the smallest quantity of blood was ever lost, although the polypus was large, highly vascular, of a dark purplish colour, of a venous character, and of the channelled species which is said to bleed on pressure.

7. In Miss D.'s case, now alluded to, she complained very much of a serous discharge, which on examination was found issuing from the uterus in vast quantity, whilst the excrescence was perfectly dry and free from the discharge, and evidently not secreting it.

There is sometimes a complication met with in cases of polypi, which I conceive is very likely to be another source of hemorrhage; for we frequently see it produce this symptom when it exists independent of this disease; and it not

unusually keeps up the shedding after abortion, and in some instances reproduces it after it has ceased for a time,—I mean ulceration of the cervix uteri, first pointed out as a not infrequent concomitant to this affection by Dr. Henry Bennett, in the Lancet for July, 1845.

This case illustrates very forcibly the difficulty we frequently have in diagnosing polypi of the uterus, and strongly points out how it behoves us to be very cautious in giving an opinion in doubtful cases, of which it is evident the French Professor, Dupuytren, was aware, from the following quotation from his work:—"When fibrous tumours are completely shut up in the womb, whose cervix is not at all dilated, the rational symptoms furnish only conjectures, and the toucher and sight are insufficient." The fact of Mrs. M. having been treated as if about to abort, bears out these views. Indeed, every practical accoucheur must be forcibly impressed with the truth of this assertion.

Although the case now under consideration terminated so successfully, I think that were I to meet again a similar one, I should somewhat modify my treatment; as thus, I should dilate the os uteri so as to explore that organ, and to bring down the polypus, if there, into the vagina, I should then excise, having previously deligated it. This latter combined treatment I pursued in the case of Miss D., already quoted, and which has long since been recommended by Dupuytren in certain cases of polypoid disease; and has also been advised and carried out by me in amputation of the cervix uteri.

Many means of dilating the os uteri in cases of disease have been from time to time suggested, amongst which we find the following: tents of gentian root, of compressed sponge, and lately of elm bark, the latter so highly vaunted by Dr. Storer, of Boston, and Mr. M'Donnell, of Virgina. Screw dilators, made of box-wood, have been recommended by Mr. Ausandon. Dupuytren prefers incision of the os, followed by ergot of rye, to the use of sponge; and he thus speaks of the latter:—"Such manœuvres have ended in the development of intense metroperitonitis." He also says, if ergot of rye be given before this operation, it may produce rupture of the womb. I, for my part, think such an accident far more likely to follow on his treatment. I, however, have never adopted it, but I have used both the sponge tents and the dilators of Ausandon with success, and without any of the evil effects spoken of by that celebrated surgeon ensuing.

Art. XIV.—*Observations on Fatty Degeneration of the Kidney and Liver.* By Ben. Wills Richardson, Fellow, Licentiate, and Member of the Court of Examiners of the Royal College of Surgeons in Ireland.

A few cases of chronic renal disease and fatty deposit in the liver having been met with by me during the course of the present year, I take advantage of the opportunity offered by them to draw attention to some questions in the history of these diseases that appear to require further investigation.

The kidneys described in this paper were all, I believe, loaded with oil; however, for the sake of accuracy, it is safest to consider as such only those that were histologically examined. I would also observe, that these kidneys, as well as some I have since examined, lead me to think that oil plays a much more important part in the pathology of these organs than is usually supposed, at least in this city.

The two first cases are not as perfectly given as they should be, but, having been made the subject of a very careful dissection, I am tempted to introduce them here.

Case I.—*Fat in large quantity in the Kidney; Uriniferous Tubes deprived of their Epithelium; Death from exhaustion.*

Anne Brannagan, aged 30, was under my observation but a short period, during which her symptoms were, anasarca, chronic diarrhœa, albuminous urine, and the characteristic anemic appearance of persons affected with Bright's disease. When I first saw her, it was apparent that her sufferings would not be of much longer duration. These anticipations were soon verified, for the fatal termination of her case took place in a few days afterwards. The exhaustion was extreme, but she retained her mental faculties to the last.

Autopsy.—The tissues were all blanched. There were no other morbid appearances, except in the kidneys, which were large, whitish, flabby, and both of nearly the same size, the larger being five inches and a half long, and two and a half wide. On making a longitudinal section, and exposing their secreting structure, it was at once perceptible that this increase in dimension was owing to a heterologous deposit that encroached very much upon the tubular portion of the organs. The question next to be decided was, what was the nature of this deposit? —which was quickly answered by means of the microscope; this instrument demonstrating the presence of an enormous quan-

tity of oil and granule cells. Fig. 1 delineates very accurately the morbid state of their cortical substance.

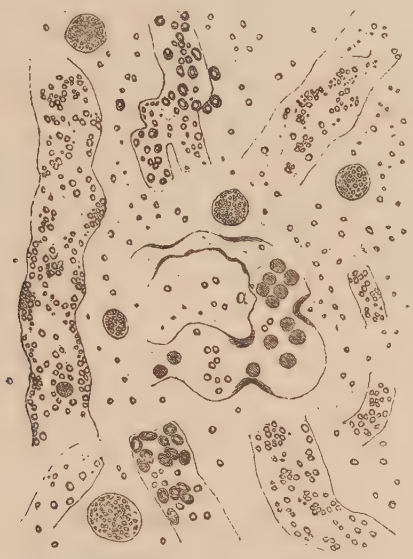


Fig. 1.

The epithelium, with a few rare exceptions, had disappeared from the uriniferous tubes. These were almost filled by oil globules of various sizes, and some of the tubes were more or less atrophied. Others contained scattered dark granular epithelium. There was likewise a vast quantity of free oil, and numbers of granule cells distributed over the field of view. At *a*, in the centre of the illustration, is seen one of the uriniferous tubes, containing a few dark cells; and this tube also exhibits an appearance that is supposed by some pathologists to be the early stage of cystic development in the kidney. For instance, this tubule, transparent, and almost totally deprived of its epithelium, here and there presents constrictions, giving it a beaded appearance. I can, therefore, readily understand how a further narrowing of the constricted portions would cause the dilated parts of the tube to assume the appearance of isolated cysts in the kidney.

A different opinion on the formation of renal cysts has been published by Mr. J. Simon, and others. The former gentleman supposes that they are, at first, simple nucleated cells; and from

his observations it would seem that, "from the same germs—according, no doubt, to varying influences—healthy gland cells might grow, or these fluid-holding cysts"[a]. He considers, also, that "certain diseases of the kidney (whereof subacute inflammation is by far the most frequent) tend to produce a blocking of the tubes; that this obstruction, directly or indirectly, produces rupture of the limitary membrane; and that then, what should have been the intra-tubular cell-growth continues, with certain modifications, as a parenchytic development"[b]. He likewise seems to be of opinion that these cysts are a new secretory apparatus, destined to compensate for the destruction of the secreting structure of the kidney[c]. For further information on the development of renal cysts, I must refer to his memoir here alluded to, as well as to Dr. George Johnson's book on the Kidney, and to Mr. Paget's Lectures on Pathology.

Although there was such an enormous quantity of oil deposited in the tubes, as well as destruction and stripping of the epithelium (as seen in Fig. 1), yet I met in these specimens a few tolerably healthy tubes (Fig. 2).

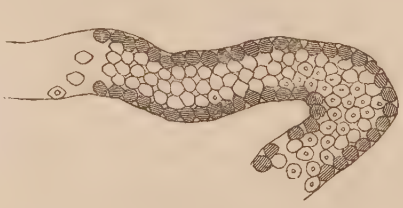


Fig. 2.

The reader will perceive that there were no head symptoms in this case, which is interesting, considering how *almost* completely the secreting element for separating the organic constituents of the urine were destroyed. I will allude to this point further on.

Case II.—*Ascites; occasional Vomiting; Albuminous Urine; Death from exhaustion.*

Cornelius Wilson, aged 50. This man was also only a short period under my notice, having been admitted in the last stage of renal disease. He was then extremely cachectic, had ascites, but was free from anasarca. His countenance was extremely

[a] Medico-Chirurgical Transactions, vol. xxx. p. 151.
[b] Ibid. p. 152. [c] Ibid. p. 141.

unhealthy, having the colour of a person whose liver was cirrhosed. He had not suffered from diarrhœa, but, at the period he fell under my care, he was occasionally annoyed by chronic vomiting and dry retching; these, however, were not of frequent occurrence. The urine was acid, slightly albuminous, and of low specific gravity.

This man's exhaustion became extreme, and he gradually succumbed, preserving an unimpaired intellect to the last.

Autopsy.—The kidneys were of the normal size, presenting to the unaided eye the mottled appearance so characteristic of organic change in these organs. On examining them microscopically, I found that they contained a large quantity of oil. The epithelium, although a great deal darker than natural, existed in much larger quantity than in the kidneys of Case I. And the oil (Fig. 3) though present at the same time, with

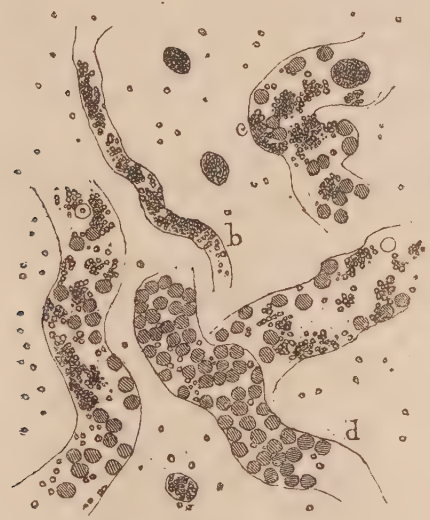


Fig. 3.

a considerable number of granule cells, was in less amount, which will be seen by comparing Figs. 1 and 3.

Some of the tubes were very much wasted, as seen at (*b*) in the latter figure; and at (*c*) is a tube, also loaded with oil, and containing a large granule cell; and *d* represents a tube which contained the dark granular epithelium.

It is again interesting to observe that the amount of oil in the kidneys of Case II. was much less than in those of Case I., and also that the tubes of the former were not stripped of epithelium to the same extent. But although there was epithelium in considerable quantity in the tubes of the kidneys of Case II., yet, on looking at the illustration, it will be seen that the cells were much altered in character, being very dark, granular, and more solid in appearance than natural; so that it is probable they were, at the moment of death, totally inadequate to their functions of separating the principles of the urine from the blood.

Case III.—*Albuminous Urine; Anasarca; Phthisis; Abnormal quantity of oil in the hepatic cells, and extreme fatty deposit in the kidneys.*

Thomas Caulfield, aged 18, was admitted into the male hospital, South Dublin Workhouse, on February 7, 1856.

About two months previously to his admission, symptoms of phthisis began to show themselves, viz., perspirations, cough, diarrhœa, wasting, with the addition of occasional annoyance from pains in the loins, the abdomen, and hypogastrium.

The legs became œdematous in a few days after his admission into the institution; the urine was highly albuminous, smoky in appearance, acid, sp. gr. 1·022, and contained num-

Fig. 4.

bers of oily casts of the uriniferous tubes; these latter were occupied by blood globules and very granular cells, apparently altered epithelium, or perhaps pus. There were some larger oil or granule cells, and likewise free epithelium (Fig. 4).

After he had been in the institution a short period, vomiting supervened, and became a troublesome symptom, being very unamenable to treatment. There was little difficulty in ascertaining the state of his chest; the usual characteristic physical signs of tubercular cavities being well marked in both lungs.

Notwithstanding that the skin perspired freely, the anasarca gradually extended, and ascites became superadded. He lingered on in great suffering, although various anodynes were liberally used; and on 11th April he was seized with a violent pleuritic stitch in his left side, which further increased his exhaustion, and he died in two days afterwards. The diarrhœa ceased a couple of days before death, but the irritability of the stomach continued to the last. The mind was unaffected during his whole illness.

Autopsy, twelve hours after death. *Chest.*—Both pleural cavities contained reddish serum. The investing and parietal layers of the left pleura were smeared over with dirty-looking corpuscular lymph. The left lung was densely charged with tubercles, and the whole of its upper lobe was excavated by a large jagged tubercular cavity. There were also an excavation and abundance of tubercles in the right lung, but the cavity was not so capacious as that in the opposite organ.

Abdomen.—Peritoneal cavity contained serum. The kid-

Fig. 5.

neys were of enormous size, flabby, pale, and mottled. On cutting into their substance, the cortical structure was disco-

vered to be copiously loaded with yellow granulations. The right kidney weighed 12½ oz., and the left 10 oz., making together 22½ oz.; this great addition to their weight being chiefly composed of oil. Under the microscope they presented the most exaggerated appearance of fatty deposit. There was a vast quantity of free oil globules as well as large granule cells in the field of view, which caused some difficulty in exposing the tubes for the drawing. Some of these tubes were gorged with oil, as seen in Fig. 5. Others contained cells, which were apparently being filled with the same substance, and thus undergoing transformation into granule cells, as seen in the upper part of the illustration. The capillaries in the Malpighian bodies were demonstrated very beautifully, by disease, in these kidneys; for, owing to the obstruction of the circulation through the organs, these vessels were injected by blood globules, which, by their yellow colour, caused the contour of their ramifications to be very well defined. Although the liver was of the natural size, the hepatic cells were more or less loaded with oil (Fig. 6). The oil globules varied very

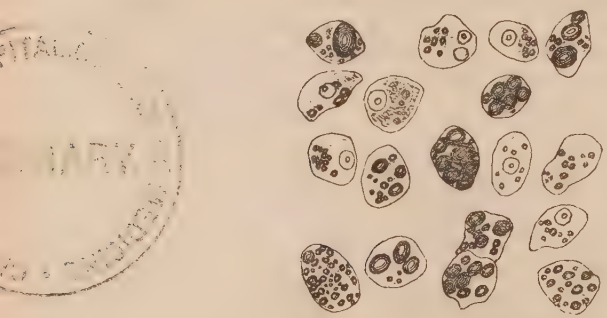


Fig. 6.

much in size, as seen in the diagram. In a considerable number of the cells the nuclei were distinctly visible.

Case IV.—*Albuminous Urine; Anasarca; Phthisis; fatty deposit in the kidneys and liver.*

Anne Brown, aged 44, married; temperate in her habits.

The history of her case is that of phthisis. She suffered from the perspirations of cachexia; then she threw up blood, and subsequently, cough became permanently established. This first seized her about two months ago, and has continued uninterruptedly since. The perspirations ceased previously to the coming on of the cough.

Her ankles next became swollen, and afterwards the eyelids. Six weeks ago irritability of bladder set in, which persisted up to her admission.

No appearance of the catemenia during the last three years.

Present Symptoms.—Slight bronchitic irritation, with the physical signs of a cavity well-marked, under the right clavicle; extensive anasarca, which precluded an accurate abdominal examination; urine, acid and albuminous. I could not procure sufficient to test its specific gravity, as both it and fæces were passed involuntarily.

She suddenly became weaker and more prostrate; her manner altered, and her mind began to wander, but she had no other head symptom. At last, death put an end to her case on April 12, 1856.

Autopsy. Chest.—There was a dryish cavity in the apex of the right lung, about the size of a very small lemon; a few disseminated tubercles existed in both lungs; in other respects their structure was remarkably exempt from disease.

Abdomen.—The kidneys were pale, flabby, and also larger than natural. The right kidney weighed 5½ oz., and the left

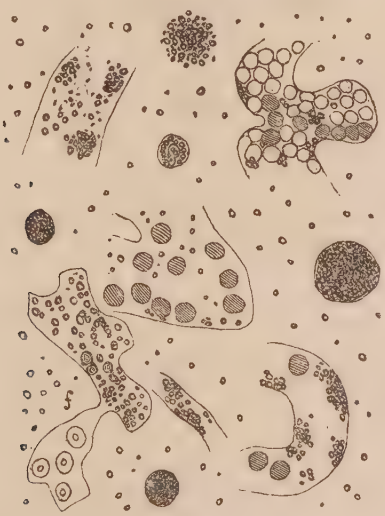


Fig. 7.

7½ oz. The cortical substance had very much encroached upon the tubular. In both kidneys it was occupied to a considerable

extent by yellowish-white granulations. The microscope revealed in this structure large numbers of granule cells, as well as oil globules in immense quantity. Numbers of the uriniferous tubes were completely stripped of their epithelium, and loaded with oil; others were wasted, and also full of oil. In some the epithelium was dark and granular; here and there, nevertheless, were seen a few apparently healthy cells (Fig. 7). The tubes of these kidneys were remarkably brittle, insomuch that I found great difficulty in procuring pieces sufficiently large for illustration.

The liver was considerably enlarged, mottled, and having the nutmeg appearance. The hepatic cells were not only loaded with oil, but the whole field of the microscope was occupied by free oil globules. In scarcely any of the secreting cells were the nuclei visible (Fig. 8). From my examination of this

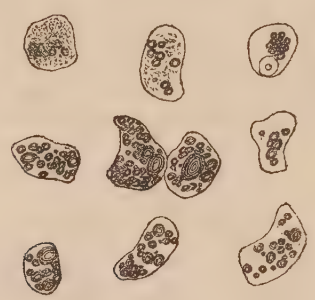


Fig. 8.

liver it was evident that its great increase of size was the consequence of the oil it contained.

I have purposely placed Cases III. and IV. together, because in neither of them was there any relation between the size of the liver and the amount of disease in the lungs. This leads me to an interesting question—namely, the cause of fatty deposition in the liver? It was, and is still, a received doctrine with many, that this increase of oil in the liver in phthisis results from that organ assuming a compensatory action for the lungs,—the respiratory organs being unable, from their diseased state, to eliminate hydro-carbonaceous matters from the system.

From the admirable manner in which Dr. Budd[a] has

[a] Diseases of the Liver. Second edition. 1852.

brought together the arguments on this subject, those interested in the question can have little difficulty in satisfying themselves that the above ingenious theory is not tenable.

As Dr. Budd's work may not be in the hands of all the readers of this paper, I have taken the liberty of introducing here, as concisely as possible, some of the most forcible of these arguments.

If an abnormal quantity of oil in the liver in phthisis was the result of diminished decarbonizing power of the lungs, it is manifest, it should occur in equal proportions in persons suffering from pulmonary consumption in both sexes. Such is not the case, however, for it has been found that oil exists as a morbid deposit in the livers of persons affected with phthisis much more frequently in women than in men, in the proportion, according to Louis, of 4 to 1, being four times more frequently met with in the female than in the male sex.

How seldom do we meet with fatty liver in the disease of the heart or in asthma. Even in emphysema of the lungs the liver remains remarkably free from this deposit, although in these cases we often see patients, for considerable periods, almost blue from carbonized blood.

Rokitansky has found fatty disease of the liver in persons affected with tubercular deposits in other organs, the lungs being free from disease. And it has also been met with by Mr. Partridge and Cruveilhier in malignant diseases, the liver being at the same time free from any cancerous deposit. It has also been seen in persons who died of pneumonia or dysentery, and in the liver of a person who had chronic pemphigus.

Some other explanation, therefore, must be sought for to explain the cause of fatty deposition in the liver, for, from the above facts, it can scarcely be considered to result from any interference with the decarbonizing function of the lungs.

Dr. Budd seems to think that it is connected with the abundant suppuration, the wasting and the hectic, so frequent in phthisis. I am afraid, however, that this explanation is not satisfactory, because the increase of oil may occur where these symptoms are not well marked. For instance, in the case of Brown, previously given, the lungs were not much diseased; indeed, with the exception of the cavity, they were pretty free from disease: notwithstanding, the liver was a good deal enlarged. On the other hand, in Caulfield's case, the converse of this was observed, namely, the liver was of the normal size, although he had disease of the lungs to an exaggerated degree.

Dr. Budd considers it probable that the oil found in the liver in these cases is the fat that has been removed from dif-

ferent parts of the body in the process of wasting, and then "laid hold of by the hepatic cells, which have a natural affinity for it"[a]. He supports this theory by alluding to the opinion of Larrey, who supposed that the oil in the liver, in its fatty state, resulted from the solution of the fat previously laid up in the body. Larrey thought this view was sustained by the process employed on the Continent for making *pâtés de foie gras*. "Fatted geese," according to him, "are confined in close cages, and then exposed to a graduated heat, being kept at the same time entirely without food, even without water. The fat undergoes a kind of fusion, and the liver grows enormously large. The liver is considered to be in the desired state when the animal is *extremely wasted*, and the fever increases"[b].

There is considerable discrepancy between this account of Larrey's and that of other writers, as to the process pursued for procuring the *foie gras*; for instance, at Strasburg, the place of all others the most celebrated for them, they are prepared by "the cruel process of shutting the birds up in coops within a room heated to a very high temperature, and stuffing them constantly with food"[c],—the principal agents in inducing the disease being, according to Dr. Pereira, "external heat, obscurity, inactivity, and the *cramming the animals with food*"[d].

Dr. Budd gives, as a reason for the liver being more fatty in women than in men, that it is partly owing to "women being generally fatter than men." Experience, I

[a] Diseases of the Liver, p. 295. [b] Budd, ibid., p. 295.

[c] Pereira on Food and Diet. 1843. pp. 20, 267.

[d] "Perhaps the greatest refinement in fattening is exhibited in the manner of feeding ortolans. The ortolan is a small bird, esteemed a great delicacy by the Italians. It is the fat of this bird which is so delicious; but it has a peculiar habit of feeding, which is opposed to its rapid fattening, that is, that it feeds only at the rising of the sun. Yet this peculiarity has not proved an insurmountable obstacle to the Italian gourmands. The ortolans are placed in a warm chamber, perfectly dark, with only one aperture in the wall. Their food is scattered over the floor of the chamber. At a certain hour in the morning the keeper of the birds places a lantern in the orifice of the wall; the dim light thrown by the lantern on the floor induces the ortolans to believe that the sun is about to rise, and they gradually consume the food on the floor. More food is now scattered over it, and the lantern is withdrawn. The ortolans, rather surprised at the shortness of the day, think it their duty to fall asleep, as night has spread her sable mantle around them. During sleep, little of the food being expended in the production of force, most of it goes to the formation of muscle and fat. After they have been allowed to repose for one or two hours, in order to complete the digestion of the food taken, their keeper again exhibits the lantern through the aperture. The rising sun again illuminates the apartment, and the birds, awaking from their slumbers, apply themselves voraciously to the food upon the floor, after having discussed which, they are again enveloped in darkness. Thus the sun is made to shed its rising rays into the chamber four or five times every day, and as many nights follow its transitory beams. The ortolans thus treated become like little balls of fat in a few days."—Whiteside's *Italy*.

fear, will not support such a view, because we meet with fatty liver in women labouring under the tuberculous cachexia and its attendant emaciation for long periods, previously to their affording any evidence of an enlarged state of this organ. And, besides, females have had their livers fatty who never were fat,—in fact, were always emaciated.

Supposing, however, that Larrey's idea is correct, we are met with the difficulty, which I give in Dr. Budd's words:—"Why does the fat laid up in the body become absorbed so as to be in excess in the blood in phthisis, and not also in chronic diseases equally wasting?" Those who are inclined to believe that the oil in the liver in phthisis is, in some way or other, connected with the strumous diathesis, may be met by the question—Why is it more frequent in strumous women than in scrofulous men?

It may be objected that the reason Caulfield's liver contained so much less oil than Brown's, was in consequence of his kidneys having acted compensatory for the liver; but I do not consider that this objection would be a valid one, because, according to the compensatory action theory, there should not have been any oil, at least much more than natural, in Brown's liver, much less in her kidneys.

It would appear, therefore, from the above considerations, that the cause of fatty degeneration of the liver in phthisis is, notwithstanding the ingenious theories that have been advanced to explain it, still involved in considerable obscurity.

The hepatic cells are frequently found containing an abnormal quantity of oil in cirrhosis of the liver (Fig. 9). Whatever

Fig. 9.

difference of opinion may exist as to the cause of the accumulation of oil in them in phthisis, I think it exceedingly probable that its increase in the hepatic cells in cirrhosis is the

result of their assuming a compensatory action for those cells, which have been destroyed by the pressure of the contracting lymph effused in the liver in this disease.

The two following cases are of some interest, because they are examples of a complication of Bright's disease, by no means infrequent in this country.

Case V.—*Suppurative Pneumonia; Typhoid symptoms; one kidney granular, large, and fatty, the other small and contracted.*

Patrick Daly, aged 62, was admitted, labouring under pleuro-pneumonia of the left lung. It is unnecessary to give the full particulars of the case; suffice it to say, that typhoid symptoms rapidly supervened, and, with these, latency of the phenomena of the thoracic affection.

He rapidly succumbed, although wine and stimulants were freely administered, the fatal event taking place in a few days after his admission.

The urine, unfortunately, was not examined during life, which precludes my saying anything relative to the state of this secretion.

He was free from anasarca, diarrhœa, or vomiting, whilst under my observation.

Autopsy. Chest.—The left lung was covered by a layer of dirty purulent lymph, the organ itself being in a state of purulent infiltration.

Abdomen.—The kidneys were much diseased. The right was about twice its natural size; soft, flabby, granular, and having yellowish-white granulations disseminated through its cortical structure. The latter encroached greatly upon the tubular portion of the gland, with the effect of completely destroying some of the cones.

The left kidney was very small, contracted and nodulated, with scarcely a trace of cortical or tubular portion to be seen.

Being pressed for time at this period, I was unable to make a histological examination of these kidneys. The case, however, is not without its interest, as mentioned above, illustrating as it does, one of the most dangerous complications of chronic renal disease.

The fatality and frequency of this complication of Bright's disease in this city was illustrated during the course of the last session of the Dublin Pathological Society, some interesting specimens having been exhibited by Drs. M'Dowel, M'Clintock, Hughes, and others.

The fact that pneumonia frequently supervenes on chronic renal disease did not escape the observation of the earlier writers on Bright's disease. And it appears to me that Rayer, Becquerel, Mr. John Simon, and Dr. Copland, have taken a very accurate view of the connexion between these affections; in regarding the pneumonia as the complication of the renal disease, and not the renal disease the complication of the pneumonia.

When one considers that there are few diseases in which the vital fluid is so deteriorated as in that under consideration, it seems highly probable that the affection of the lungs is consequent upon this diseased state of the blood.

That pneumonia is a frequent mode by which Bright's disease is brought to a close in this climate, the Reports of the Dublin Pathological Society amply show.

Rayer, who at the period of writing his work had met with *twelve* cases of this kind[a], does not seem far astray in calling it "a secondary affection or ultimate phenomenon." Becquerel also applies to it a designation of nearly similar import, classing it among the "intercurrent final phlegmasiæ," in albuminous nephritis. Out of 129 autopsies of renal disease collected by this author, in 22 there was pneumonia or pleuropneumonia[b].

The pathological characters of the disease would seem to confirm the supposition of the lung complication being in some way or other connected with diseased blood. Rayer's description of these being so similar to the characters of the state of the lung observed recently in this country, and as this accomplished physician was the first, so far back as 1840, to draw attention to this complication, I think it fairly due to him to introduce here his own description of these appearances. In relating the state of the lung, he tells us that he met with "cases in which the inflammation sometimes invaded several lobes, at others the whole or part of a lobe; sometimes it develops itself in several lobules of the lungs. In this last case, the inflamed points, disseminated and isolated from each other in the pulmonary substance, forming nuclei (*noyaux*), of which some were in the stage of red hepatization, others in the state of *gray* hepatization, and analogous to the lobular pneumonias which he has seen occur in some cases of simple nephritis, and almost constantly *in diseases produced by morbid poisons, or which sometimes declare themselves after great surgical operations*"[c].

[a] Page 291.
[b] Becquerel, Séméiotique des Urines, p. 496. 1841.
[c] Ibid. p. 292.

In one of these cases (Case xxxviii.) there was gray hepatization of the *whole* superior lobe of the right lung, perfectly limited to this lobe. The finger entered very easily into the pulmonary tissue, as into a purulent detritus. ("Hépatisation grise de tout le lobe supérieur du poumon droit, parfaitement limitée à ce lobe. Le doigt s'enfonce très facilement dans le tissu pulmonaire, comme dans un détritus purulent"[a].) Hence it appears that this case at all events was exactly similar to the majority of those seen in Dublin.

It has been stated that the pneumonia described by Rayer as complicating albuminous nephritis comes on at a late period, and after the dropsy and other symptoms of the renal disease have been fully developed, and that in these respects his cases stand in contrast with those met with here. On a careful comparison of the descriptions of the kidneys that have been published, I cannot perceive that these differences exist between those of Rayer and of the Dublin pathologists. Nor can I discover that this author anywhere states that the above features *are* characteristic of the pneumonia he described; he merely calls them "secondary affections *or* ultimate phenomena in albuminous nephritis"[b], and says that "the symptoms of these pneumonias *may be* (*peuvent être*) more or less masked by those of dropsy, or by the symptoms of cardiac disease, &c"[c].

Although in some of the cases published by Drs. Bright, Gregory, Christison, and others, the fact of pneumonia occurring as a complication of renal disease appears in the course of their histories,—yet, so far as I am at present aware, it was Mr. J. Simon who first, in 1847, clearly pointed out the connexion between Bright's disease and the affection of the lung. "Thus," says he, "with occasional great exacerbations, and with unfailing smaller steps of progress,—the disease goes on, even *for years*, before continued dropsy, and the well-known signs of urinous poisoning, give notice of its near termination. But those who are familiar with the course and complications of renal disease will easily believe that a large proportion of the patients whose case I am considering must die with obscure symptoms not referred to the urinary organs, often from *double pneumonia*"[d].

It would seem, therefore, that pathologists are inclined to consider this pneumonia as the result of blood contamination,

[a] Ibid. p. 297. [b] Ibid. p. 291. [c] Ibid. p. 292.
[d] Medico-Chirurgical Transactions, vol. xxx. p. 149. Also, Lectures on Pathology, p. 34. 1850.

itself an effect of renal disease. Indeed, recent pathology goes farther, for not only is the evidence in favour of its being consequent upon the diseased blood, but also that the renal degeneration originates in a morbid state of the circulating fluid. The history of the majority of the cases already published also leads to the supposition, that a further deterioration of the vital fluid is necessary to favour the development of this state of the lungs.

As to the treatment of the complication before us, the evidence is strongly in favour of stimulants. When we recollect that a depraved state of the blood has been so unequivocally demonstrated in Bright's disease, there can scarcely be a second opinion on this point, as well as upon the danger of lowering the patient by abstracting the vital fluid,—"the state of exhaustion," as Rayer truly observes, rendering bleeding "often inefficacious or quite inapplicable."

Quina, as recommended by Drs. Williamson, Laennec, Copland, and more recently by Dr. Corrigan, with such success in asthenic pneumonia[a], deserves a trial.

Notwithstanding the best directed efforts, renal pneumonia, if we may use the expression, in a large number of cases will prove fatal. In most of the cases, says Rayer,—"this pneumonia is mortal"[b]. Such is also the experience of Becquerel, who states that,—"the intercurrent phlegmasiæ[c] are in general of an unfavourable prognosis, and are almost always followed by a fatal termination, more or less prompt[d]. And such, it is almost needless to say, is the clinical history of the complication in this country.

That occasionally a person may quickly recover from an attack in the lung in renal disease, is evident from the following case.

CASE VI.—*Albuminous Urine; slight Anasarca; Pneumonia; recovery from the latter.*

Thomas Lonergan, aged 52, a man of intemperate habits, having been very much addicted to drink, admitted into No. 11 ward, 17th May, 1856.

He was then in a very low state with cough and pain in the right side of chest, in which situation abnormal dulness to

[a] Dublin Hospital Gazette, vol. iii. p. 177. [b] Op. cit. p. 293.

[c] The term "phlegmasiæ" does not seem to be an appropriate name for these complications; the most general opinion being, that they are rather allied to the diffuse inflammations.

[d] Becquerel, p. 561.

percussion, and pneumonic crepitus, with feeble bronchial respiration, were discovered. The expectoration was not only rusty, but had assumed very much the prune-juice tint[a]. The pulse was small and weak, and the temperature of the skin was slightly increased.

Urine, acid, albuminous, and having a specific gravity of 1·020.

He was ordered wine, diffusible stimulants, and nourishing diet. Counter-irritants were applied locally. On the fifth day the abnormal dulness had disappeared, and the respiratory murmur was audible in the lung. His strength had also much improved. The urine, however, had fallen in specific gravity, being now 1·020.

May 24th. He was seized this morning with profuse hemorrhage from the bowels. Fortunately, it was completely controlled by gallic acid in mixture, and opiate enemata.

June 2nd. The renal symptoms are now his only ailment; but œdema of the ankles has made its appearance since last report. Being free from fever, tincture of the muriate of iron was prescribed. Under its use he improved so much in strength, that he left the institution as soon as the fine weather set in, in order to seek employment. The urine was then of low specific gravity, and contained albumen.

It will be observed, that the renal disease was associated with phthisis in two of the cases already narrated: a combination very frequent amongst the poor in this city. It appears, also, to be a not infrequent occurrence in England[b]. And in both Rayer and Becquerel's works there is conclusive evidence that it is by no means uncommon in France[c].

Rayer and Dr. Bright are at issue as to the influence the phthisical constitution exercises upon the production of renal disease; Rayer considering that phthisis has a "remarkable influence in the development of albuminous nephritis." Dr. Bright, on the other hand, supposes that—"the condition of the body in this form of renal disease is unfavourable to the existence of phthisis, or that it is certainly not peculiarly apt to occur in tuberculous constitutions"[d].

My experience on this point, and it has been pretty considerable, corroborates Rayer's opinion; indeed, this author has

[a] It should be borne in mind, in examining the expectoration of the lower orders in this country, that tobacco-chewing causes the sputa to assume a similar appearance.

[b] Johnson, p. 81. [c] Op. cit. p. 322.

[d] Guy's Hospital Reports, 1836. No. 11, p. 397.

so strengthened his assertion by cases, that the fact can be no longer doubted. Specimens of the kind have been also exhibited at the meetings of the Dublin Pathological Society.

Out of the 129 autopsies of cases of renal disease alluded to by Becquerel,—"tubercles existed in the lungs in 51 cases." But he supposed that—"in these 51 cases, in 29 only they could be considered as sufficiently advanced to have exercised any influence in the *production* of Bright's disease"[a]. It is probable, however, as suggested by Dr. Johnson, that the coexistence of disease in different organs results from one common cause, viz., "a general morbid condition of the blood"[b].

The following case of gangrene, occurring in the course of Bright's disease, is worth recording.

Case VII.—*Albuminous Urine; Anasarca; Serous Effusions; Purpura; Chronic Ulcer, which subsequently became gangrenous and hemorrhagic; Death.*

John Murphy, aged 56, was in hospital for a considerable period with a chronic ulcer on the left leg, and the usual symptoms of Bright's disease. Notwithstanding that precautions were employed to delay the deterioration of his blood, in three months after he came under my observation purpuric spots appeared over his body; his gums became swollen and spongy; and, in a few days more, the ulcer in the lower extremity was converted into a gangrenous and hemorrhagic sore.

Although pressure and styptics were applied locally, and internal astringents, with wine, &c., were freely used, the bleeding could not be completely suppressed until the tourniquet was applied by Dr. Shannon to the femoral artery. On the fourth day after the hemorrhage was controlled, Murphy was seized with a fatal attack of coma, which terminated the case in the course of a few hours.

Autopsy.—On Dr. Mayne opening the cranium, a large quantity of thin watery blood flowed out, and continued to well up for a considerable period. There was no blood effused into the substance of the brain, but the ventricles contained a small quantity of uncoloured serum.

Although the blood was so thin and watery, it formed a *soft* coagulum in the base of the skull after the brain and cerebellum were removed.

The kidneys were granular, and about twice their natural size. The tubular structure was partly destroyed, being much

[a] Op. cit. p. 500. [b] Op. cit. p. 81.

encroached upon by the cortical substance. This latter was thickly studded with yellowish granulations.

The complications of Bright's disease, erysipelas, scurvy, and gangrene, have been met with by writers on renal pathology[a]. The above case differs, as regards the ulcer, from some of these, because it was of some standing, and probably preceded the alteration in the kidneys.

A considerable number of the cases of gangrene occurring during the course of Bright's disease particularly affected the lower extremities and the organs of generation, in both the male and female sexes. In some of these cases it seems to have resulted from over-distention of the areolar tissue and skin by effused fluid; but, as Rayer remarks,—"the development of these inflammations is singularly favoured by the phlogistic disposition which shows itself under so *many forms* in albuminous nephritis"[b].

This eminent physician has drawn attention to a practical question connected with the treatment of renal anasarca, and one deserving notice here, namely, the advisability of relieving the distended integuments by acupunctures or scarifications. It is indubitable that sometimes considerable alleviation follows these operations, but, on other occasions, they have been succeeded by erysipelatous inflammation, and subsequently gangrene, having death as a rapid consequence.

Now, it would appear from Rayer's experience, as well as from cases recorded by other writers, that the danger of these punctures taking on this unfavourable action is much greater in the anasarca of Bright's disease than in that of cardiac disease[c].

Trifling, therefore, as these little operations may seem, they are not without their dangers, and should not be had recourse to unless all other means fail to afford relief.

The reader must have observed that, with the exception of the case of Murphy, and the slight disturbance of Brown's intellect, the persons whose histories are given in this communication were free from head symptoms during the whole course of their illness. In Murphy there were two circumstances that may have had a considerable share in promoting the fatal coma, namely, either the loss of blood, or the thin fluid blood found on the encephalon after death. It is probable that a considerable quantity of the fluid that escaped from the cranium issued from the neck after the brain was removed.

[a] Rayer, op. cit. p. 404. [b] Op. cit. p. 411. [c] Op. cit. p. 411.

There are few theories so popular with the profession as that of uremic poisoning, yet it is one that will not bear the close scrutiny so necessary before it should be admitted as a pathological fact.

Although there can be little doubt that urea was circulating in increased quantity in the blood in the above cases, some of this substance may have been eliminated by either the gastro-intestinal mucous membrane, or by some of the other organs[a]. As it may be objected that there was no chemical examination of the blood made in any of them, I think it better to bring forward the evidence against the uremic poison theory from other sources.

It seems strange that urea should have been selected as the poisonous agent, to the total exclusion of the other organic elements of the urine: with the exception of Drs. Todd and George Johnson, few writers have referred to these ingredients in connexion with renal coma. May there not, as has been hinted at by Dr. Johnson, "be other urinary constituents, which, being retained in the blood, exert an injurious influence either by themselves or in conjunction with urea"[b]?

The great difficulties in supposing that urea is the fatal agent are, first, that cerebral symptoms only occur in a limited number of cases of Bright's disease; and secondly, when they do happen, there is no relation between their severity or fatality and the amount of urea circulating in the system. In some fatal cases of renal coma, but a small quantity of urea was found, and in other persons the blood has been highly charged with it, without their ever having suffered from a nervous symptom during the whole course of their disease. Dr. Rees found the blood of a patient, who had his senses to the last, more impregnated with urea than that of any case of Bright's disease that ever came under his notice. Dr. Christison also states that the daily discharge of urine may be for weeks together reduced to "one-fourth of the natural amount, without any symptom of an affection of the head supervening," and he has "repeatedly witnessed such an occurrence, where, moreover, the analysis of the blood showed that it was loaded with urea." In one case (Case III.) "the patient passed no more than two ounces of light

[a] Urea has been found in the perspiration, fæces, the matters discharged by vomiting, in the air expired from the lungs, in the saliva, the tears, milk, and the fluid exhaled from the serous membranes, the secretions from ulcers, the serum from blisters, &c.—Braithwaite, Retrospect, vol. ii. p. 92. 1845.—Lectures on Pathology. By John Simon, p. 33. 1850.—Lectures on Paralysis, Disease of the Brain, and other affections of the Nervous System. By R. Bentley Todd, M. D., p. 340. 1854.

[b] Op. cit. p. 200.

urine daily for nine days before death, yet he remained sensible to the very last minute of his existence, and died simply of inanition and exhaustion from constant vomiting of everything he swallowed"[a].

Dr. Watson meets the difficulty with the supposition that the "pale and watery condition to which the blood is at last reduced may have something to do with the stupor and convulsions;" his argument in favour of this idea being that, "in spurious hydrocephalus similar symptoms are apt to ensue, in conjunction with a similar defect of hematosin"[b].

Although any opinion emanating from Dr. Watson must be received with respect, still, to me, this view does not seem convincing, because there are few diseases in which the state of the blood is so generally deficient in hematosin as in the one under consideration, and yet, head symptoms occur, as before stated, only in a limited number of such cases.

Dr. George Johnson suggests, that they may depend upon some peculiar idiosyncrasy of the persons so affected to the poisonous operation of urea. He supports this idea by the known uncertainty of the operation of all narcotic poisons. "A dose of opium which would have a scarcely appreciable effect upon one patient will make another wakeful and excited; and in a third will, perhaps, produce a degree of drowsiness almost amounting to coma. It is not unlikely," says he, "that the condition of the patient in whose blood urea accumulates may differ as much as that of the three recipients of the opiate dose. The same difference is occasionally observed in the operation of other poisons. For instance, one patient will be salivated by a quantity of mercury fifty times less than would be required to produce the same effect upon another"[c].

It is manifest, however, I think, there is one unquestionable objection to this argument, viz., the discovery that urea exists "in healthy blood as a constant, although *very minute* constituent," as has been recently proved by both Marchand and Simon[d]. Now, when medicines act so peculiarly in small doses, they did not exist previously in the system; not so with the urea, it has pre-existed in the blood, and although, as stated above, in minute quantity, still it is sufficient to destroy the parallelism between the two cases.

Quevenne has found urea in the blood, independently of Bright's disease. Becquerel mentions that he got this

[a] On Granular Degeneration of the Kidneys, p. 95. 1839.
[b] Lectures on the Practice of Physic. Second edition. Vol. ii. p. 581.
[c] Op. cit. p. 199.
[d] Simon's Chemistry. Sydenham Society's edition, vol. i. p. 49.

chemist to analyze the blood of a person labouring under organic disease of the heart with dropsy, *without any sensible quantity of albumen in the urine.* The result was, the discovery of the presence of urea,—the proportion, however, is not stated,—although after death there was no appreciable lesion of the kidney. According to Becquerel, also, who does not admit the action of the altered blood upon the brain, it is very rare, in France at least, to see individuals affected with granular degeneration of the kidneys succumb with any functional disturbance of the nervous system[a]. Whether in his calculation he has allowed for the disease being more prevalent in England than in France, he does not say, which renders this argument of less value than it otherwise would be.

It would seem, also, that Dr. Todd's faith is not very strong in the uremic theory, for, in one of his interesting Lectures on Paralysis (Lect. XVI.), in speaking of epileptic coma from lead poisoning, he states that, "when the kidneys fail in their action, and secrete only an ounce or two of urine in the day, instead of thirty or forty ounces (whether the poisonous agent be urea or *something else*), that coma and convulsions are *apt* to ensue"[b]; and again:—"This defective secretion of urine allows urea or *some other poisonous material* to accumulate in the blood, which, passing to the brain, so far disturbs the nutrition of that organ as to excite convulsions and coma."

Of all the theories that have been propounded on this subject, that of Frerichs seems the most plausible. He supposes, according to Dr. George Johnson—"that the symptoms of blood poisoning are not immediately due to the accumulation of urea, or to that of any other of the solid constituents of the urine in the blood, but that they are occasioned by the carbonate of ammonia which results from the decomposition of urea within the bloodvessels." To sustain this theory he states,—"that the air expired by patients who are labouring under symptoms of uremic poisoning (coma, convulsions, &c.) contains an appreciable quantity of carbonate of ammonia, as shown by the restoration of the colour of reddened litmus paper, which has been moistened and placed before the mouth and nose, and by the fumes which appear when a rod dipped in muriatic acid is placed in the current of expired air. The quantity of carbonate of ammonia in the expired air bears, he says, a proportion to the intensity of the symptoms. He also states that the blood in the same circumstances always contains carbonate of ammonia, which is sometimes so abundant as to be detected

[a] Op. cit. p. 464.

[b] Lectures, p. 340.

by the sense of smell, and to produce effervescence on the addition of muriatic acid"[a]. A variety of experiments were also performed by him on animals, which favour his theory, but I must refer to Dr. Johnson's work for the particulars relative to these. Ingenious though this theory is, it nevertheless fails to explain *satisfactorily* why head symptoms occur in some cases and not in others. To meet this difficulty, Frerichs "assumes the existence of some peculiar ferment in the former instances which is not present in the latter, but he has no knowledge of this supposed agent;" and as Dr. Johnson observes,—"there is here a hiatus in his observations, all of which will require repetition before the theory which is based upon them can be admitted amongst the established rules of pathology."

There is great diversity in the results of the labours of other chemists who have made this doctrine the subject of investigation, some succeeding, and others having completely failed to discover the supposed poison. Dr. Todd, for instance, was unable to ascertain the presence of carbonate of ammonia in the expired air, or in the blood, in three cases of renal epileptic coma[b].

An interesting experiment of Dr. Todd, performed some years ago, would countenance the supposition that urea does not possess that deleterious property commonly attributed to it. Having injected half a drachm of urea into the vein of a dog, the only effect produced was an excessive secretion of urine. "The place where the dog was kept was literally flooded in an hour or two by the frequency and quantity of his micturition"[c].

It may be mentioned here in connexion with Dr. Todd's experiment, that urea has been used in medicine as a diuretic[d]. In the hands of Dr. Kingdon, of Musselburgh, the nitrate acted as a very powerful diuretic, and reduced in a comparatively short time anasarcous swellings of some standing[e].

Experiments *out of the body* lend some support to Frerichs' theory. It has been ascertained that *nitrate* of urea, if heated to 316°, decomposes and disengages a considerable quantity of carbonic acid and nitrous oxide; the residue consists of free urea and of nitrate of ammonia. The nitrate of ammonia subsequently changes into water, and nitrous oxide and the urea into carbonic acid and ammonia[f].

[a] Johnson, p. 202. [b] Op. cit. p. 367, note.
[c] London Medical Gazette, 1845.
[d] See Neligan on Medicines, fourth edition, p. 202.
[e] Braithwaite, ibid. vol. x. p. 97; also Lancet, September 7, 1844, p. 729.
[f] Simon, ibid. p. 52, note.

Urea, also, if exposed to a high temperature, is decomposed into ammonia, cyanate of ammonia, and dry solid cyanuric acid. But the interesting point in connexion with Frerichs' theory is,—that a concentrated watery solution of urea may be boiled and preserved a long time without any change, unless albumen, gluten, mucus, or especially ferment, should be present, when it is speedily converted into carbonate of ammonia[a].

On the whole, then, I consider we must admit, with Dr. Johnson, that we know very little of the immediate cause of the mischief that gives rise to the coma and convulsions in Bright's disease[b]. I cannot, therefore, avoid coming to the conclusion, that these questions have yet to be decided, viz., upon what do the head symptoms depend in chronic renal disease?—secondly, do they depend upon a poison?—and if so, thirdly, what is the toxic agent?

Suppose that they should be proved to result from a poison; no case of renal disease, complicated by head symptoms, should be assumed to be one of poisoning unless the head has been previously examined, because apoplectic sanguineous effusions of the most aggravated character are liable to occur in Bright's disease. It is also necessary that observers should draw a distinction between the cases in which convulsions were the prominent symptom, and the cases of a purely apoplectic nature; as the objection may be started by the advocates for the *uremic theory*, that the sanguineous effusion was a secondary effect,—was, in fact, the result of the obstruction of the circulation through the head during the convulsive paroxysm. No such explanation can apply to those cases which are purely apoplectic from the beginning. It is probable that the effusions in these latter cases are the result of the rupture of degenerated cerebral arteries.

Although I have headed this communication, "Fatty degeneration of the kidneys," I am not insensible to the obscurity in which this subject is involved, for it by no means follows, because large quantities of oil were found both in and without the tubes of the kidneys illustrated in this paper, that this substance was the primary deposit in them. It is possible that in some of these cases oil may have been itself derived from the products of disease. Lymph in some of them may have been the primary deposit, and the oil found may have been in part derived from degeneration of the inflammatory exudation.

The discovery of Reinhardt and Dr. Andrew Clerk, that granule cells "may be derived from the primary cells of

[a] Ibid, p. 51. [b] Johnson, ibid. p. 198.

almost all other, both normal and abnormal, structures"[a], renders it possible that those I have illustrated were derived from the renal epithelial cells, and that the oil with which they were filled was the result of some chemical transformation that the contents of the cell had undergone.

Virchow has described what he calls the parenchymatous form of granular degeneration of the kidney, which throws some light upon this subject. It would seem from his investigations, which in some respects have been confirmed by other pathologists, that while "fibrinous cylinders of free inflammatory exudation may be found in the straight and a part of the convoluted tubes, other changes are ensuing in the epithelial cells; and by these chiefly, and sometimes alone, the characteristic altered structure of the kidney is induced." "In the first stage of the disease these cells enlarge, and their molecular nitrogenous contents increase, by the penetration of the inflammatory product into them. In the second stage, the increase is such that the cells break up, and the urine tubes appear filled with a molecular, albuminous substance; or else the fatty transformation ensues in them, and they are filled with a finely granular matter or granule masses"[b].

Some observations of Kölliker's, if confirmed by subsequent observers, will be totally opposed to the opinion that the granule cells are derived from the epithelial. "He has seen blood corpuscles included in the substance of these cells; and this would conclusively show, as *he* argues, that the cell-membrane is a subsequent formation in their progress of development." This view of their nature, as Mr. Simon observes, "would imply that a number of the original oil granules came into contact with each other, and cohere into a glomerulus, which subsequently becomes invested with a membrane and constitutes a cell"[c].

A volume could be easily filled with the views of different observers on the pathology of the kidneys. I have, therefore, as my space is limited, selected those of Reinhardt and Dr. Andrew Clerk on the formation of granule cells, and of Virchow on the degeneration of the kidney, as they appear to me to carry with them the most weight of probability.

The view I am inclined to take of the specimens examined histologically, and alluded to in this paper, is,—that three were originally fatty, viz., Cases I., III., and IV.; and that the

[a] Paget, Lectures on Surgical Pathology, vol. i. p. 380.
[b] Paget, ibid. p. 418.
[c] J. Simon, p. 110.

kidneys of Case II. had undergone changes, probably consequent upon nephritis, thereby rendering the oil in them a secondary deposit.

Some of the cases narrated in this paper favour the supposition, that the true fatty degeneration of the kidney is in some way or other connected with the strumous diathesis, being, as Mr. J. Simon states, essentially a scrofulous disease[a]. An experiment of this gentleman has been frequently brought forward by writers on renal pathology, to show the effect of depressing influences on the deposit of oil in the kidney—Mr. Simon having found large quantities of oil in the kidneys of cats that he had confined in a dark cellar; but it appears from Dr. Lionel Beale's investigations, that oil is a constant constituent of the kidneys of these animals. He has found the convoluted tubes "loaded with oil, and, in many instances, much oil is found in the Malpighian tuft. The fatty matter is frequently so abundant as to give the tubes the appearance of being injected with some white material when examined by reflected light"[b]. The cats, therefore, which were experimented upon by Mr. Simon may have had their kidneys charged with hydrocarbon, previous to their incarceration in the cellars.

The experiment, besides, was scarcely necessary; for if there is one thing more than another that will conduce to the development of the morbid state of the blood in the human subject, which irritates the kidney to diseased action, it is damp and impure air, bad food, and the absence of solar light, &c. Any one who will take the trouble to study the cases narrated in Rayer's work will have no difficulty in settling this point in his mind.

As regards the *treatment*, I shall merely offer a very few observations. My own experience, as well as that of the majority of writers on Bright's disease, is entirely opposed to the exhibition of diuretics, once albumen has appeared in the urine. I agree with Mr. Simon in thinking, that in this state of things they are both "perilous and unwise in the extreme," and that we should do every thing to spare and "economize the injured organ." By the judicious use of purgatives, diaphoretics under certain circumstances, the warm or hot air-bath in the early stage—provided phthisis is not present—warm clothing, a regulated diet, tonics, especially chalybeates—if

[a] Medico-Chirurgical Transactions, p. 163.
[b] On the Microscope, p. 127. Lond. 1854.

the skin is cool—as used by Dr. Bright and Mr. Druitt, and more recently by Dr. Lees, who strongly recommends their administration at an early period of the disease. By a proper employment of these means, together with a change of scene and climate, if the patient's circumstances will permit, life may be prolonged for a considerable number of years.

Since this communication was first penned, Dr. Henry Kennedy's paper appeared in the last Number of this Journal. From it there is evidence that in his hands mercury did not act injuriously, but apparently with advantage, in the cases of Bright's disease that he gives.

The great danger and difficulty with this metal are, that we cannot foresee in any given case what may be its action. In some cases the smallest doses have produced most violent effects on the mouth, and in others, such as those narrated by Dr. Kennedy, the medicine was most manageable.

My own experience confirms the propositions of Dr. Bright and others:—"*That the constitution is frequently in that state in which the effect of mercury on the mouth is developed with extreme facility, and that this effect, when once induced, is apt to be uncontrollable and violent.*"

Should any one be inclined to try this remedy, it appears to me that it should be given with the utmost caution, and in minute alterative doses, as recommended by M. Martin Solon in 1838[a]. Dr. Christison also, who, by-the-by, tells us that frequent observation has satisfied him of the truth of the above propositions, is in favour of mercury, but he advises it to be given in small doses, and only to assist the action of diuretics and purgatives. Given in this manner, it did not appear to him "particularly unmanageable"[b].

Dr. Alfred Taylor has given, in his work on Poisons, some cases which illustrate very forcibly how rapidly the specific effects of mercury may be induced by small doses of this mineral in renal disease. In one, a drachm of strong mercurial ointment, rubbed into the side, caused profuse salivation, followed by exfoliation of the jaw. In another, two grains of mercury, with chalk, produced the most intense salivation. As there are at the present day so many *speculative* legal gentlemen on the *qui vive*, seeking whom they may drag into a court of justice, it is but right to mention that Dr. Taylor also gives a case in which death followed the use of this mi-

[a] De L'Albuminurie ou Hydropisie Causée par Maladie des Reins, p. 301. Paris, 1838.

[b] On Granular Degeneration of the Kidneys, p. 141. Edinb. 1839.

neral. It was proved on the inquest, that in five days the patient—an adult—took but *eleven grains and a quarter of calomel.*

The fact may, therefore, as Dr. Taylor remarks, "be clearly admitted, that, as *a general rule*, mercurial preparations, *even in small doses*, are liable to produce excessive salivation in persons affected with renal disease, but this would not bind every man to avoid their employment; nor, in the event of an untoward result, would it justify a charge of manslaughter against him, because, in fact, his individual experience may not have led him to concur in the correctness of the general opinion"[a].

I cannot conclude this paper without expressing my thanks to my friend, Dr. Mayne, for permission to publish the cases contained in it,—they having come under my observation in the South Dublin Workhouse during his temporary absence, from illness, during last winter.

Art. XV.—*On Tubercle*[b]. By H. M'Cormac, M.D., Consulting Physician to the Belfast General Hospital.

"Nitor in adversum."

The general prevalence of a given malady implies an equal persistency in the infraction of some vital organic law or laws. The causes of morbid conditions generally, when once appreciated, are of extreme simplicity. Few at the present day will contend that typhus, plague, scarlet fever, measles, whooping-cough, and cholera, severally, are not the results of a specific infection communicable from man to man. We find it impossible, indeed, to determine the primary source of syphilis, hydrophobia, and variola; but, like the diseases previously mentioned, we do know that, as it is, they spring from an infection, and, once introduced, that the virus in each instance is capable of renewing itself in the living organism. In all these cases the origin is simple. The symptoms respectively are referable to a poison. And when we describe the manner and the order of these symptoms, we have gone as far in respect of the natural history of the disease, as in the present state of our knowledge it seems possible to do. In diseases not springing from

[a] On Poisons, p. 387, *et seq.* Lond. 1848.

[b] Read before the Edinburgh Medico-Chirurgical Society, Session xxxv., 1855–6.

infection or the operation of a specific poison, as those from cold, suddenly suppressed cutaneous transpiration, suppressed renal excretion, transport of pus into the circulation, and others—the mode of action is also simple, and the accruing results in general extremely obvious. I do not at all mean to say that the phenomena of disease are invariably capable of being understood; I only mean to say that, when they *are* understood, the etiology is generally, indeed I might add, always, simple and intelligible. So much is this the case, that we may very safely infer that, when our pathology is laboured, ambiguous, complicated, it is in all probability by so much erroneous. In the successful investigation of disease, the course, as we find, is invariably from many particulars to few, from the complex to the simple. Every one who is in the habit of turning his attention to such subjects will be able to adduce examples, in illustration of the foregoing, for himself. Although I would not affirm that the simple must be always true, I unhesitatingly aver that *the true is always simple!* The invariable course of science, indeed, is from a multitude of details to a very few; from vague, unsatisfactory, and profuse hypotheses, to a single, perspicuous, and sufficing theory. Numerous factors are at first assigned. These are progressively reduced in number, till at length they amount to a very few, or perchance but one.

I am well aware of the ambiguity of *teleological* reasoning; still, I think that such reasoning has been too much excluded from the pale of medical science. Must it be ever deemed unbecoming, or at least undesirable, to try and determine what might be the intention of a beneficent, intelligent Providence? Teleological considerations, judiciously co-related with sound facts and a living theory, will, I conceive, in many cases throw a clearer light on the origin and progress of disease. Here, the Divinity stands forth, as it were, in aid of Medicine, and subserves at once our wisdom and our learning. It demands little reflection to show that the epidemics which have devastated Europe any time these two thousand years must have sprung from violent and sustained infractions of some hygienic law. In effect they did so! There was an infraction in the first instance, as in the last, of the laws of the living organism. The results were, an intensity of consuming disease, terrifying to humanity and subversive of calm reflection. These results, the black death among the rest, were but multiples of single instances of the violation of those conditions which are alone compatible with the persistence of vitality, organic regularity, and health. Multiplicity and magnitude

terrify the child, but they also appal the man. The few pustules of the discrete small-pox on a single individual, a carbuncle, a bubo, or a more than usually watery stool, alarms no one. Let these phenomena, however, instead of affecting a few individuals, extend to millions, and horror and confusion become coextensive. Yet it is only when we study and understand disease in the *individual*, that we appreciate it in the mass. *When we determine the manner of the production of tubercle in a single person, we determine it in a measure in the whole species.* Once we ascertain the source of tubercle—for it is of this morbid degeneration that I would speak—we shall be able to exercise that scientific prevision in respect of it, which is the characteristic and the criterion of all science. And in truly estimating the sources of tubercle, we shall be in a position one day *in posse*, if not always *in esse*, to anticipate, and even to prevent it.

The causes hitherto assigned for the production of tubercle evince all the vagueness and uncertainty which distinguish that state of medical science which antedates rational demonstration—the period when the unsatisfactory and perhaps delusive hypothesis has not given place to the well-based, conclusive, and simple theory. The number, the variety, and the uncertainty of past hypotheses render them for the most part reciprocally destructive. First, we shall say, tubercle, it matters not whether pulmonary, cutaneous, cerebral, osseous, spinal, arthritic, or mesenteric, has been said to be hereditary! Yet, there is not a shadow of reason for the hypothesis, except the frequency of tubercle itself, and of course the liability of the offspring of the tuberculous, in common with others, to the infliction. That the infant *in utero* should be sometimes tuberculous, affords no plea; for the infant *in utero* is exposed in a measure to the consequences of the unhealthy conditions under which the female parent herself laboured. Those who die tuberculous are *not* necessarily born so. A theory, to be valid, must suit *all* the cases; to say, then, that tubercle is hereditary, is merely to evade the question. The tuberculous man's father had, it will be said, tubercle. Very well, what made the father tuberculous? Why, *his* father was so; and thus the ball is driven along, much after the fashion of the story of Hindoo cosmogony. The world, quoth the Hindoo, rests on an elephant. And the elephant on what? Why, on a tortoise. And the tortoise on what? Here, however, the Hindoo is silent. Again, tubercle, we are told by some, is infectious! This, however, is even less satisfactory than the elephant and tortoise hypothesis. Did any animal ever contract tubercle by inoculation? The thing is impossible; we might as well try to

inoculate a broken leg. Tubercle, in fact, is in nowise communicable. Some relative, after prolonged attendance on the sick, we shall suppose, contracts tubercle. But this result does not spring from contact, but only ensues *because the circumstances are otherwise provocative of tubercle*, and because tubercle, therefore, would be contracted were there no tubercle-infested person, in the first instance, in the case at all. Bad food, bad nutrition, dyspepsia, induce tubercle, say some; but dyspeptic people are only sometimes tuberculous. When they are so, it is because they have been exposed to the causes of tubercle, *which are not the causes of dyspepsia.* Dyspepsia *per se* never induces, never did induce, tubercle. During the unhappy Irish famine the victims perished of want, indeed, but not of tubercle! It is neither a vice of nutrition nor the want of nutrition that induces tubercle. Multitudes die every year of tubercle, who never experienced dyspepsia, nor suffered an ungratified material want in their lives. No, neither dyspepsia nor want has anything to do with the production of tubercle, more than have cold and moisture—causes yet more frequently alleged, and if possible yet more illusory. What multitudes are exposed to cold and hardship, and want and moisture, and yet perchance never evince a trace of tubercle! How common is tubercle among the many who never, so to speak, were exposed to cold, or hunger, or wet, at any time? How various, contradictory, and unsatisfactory are these pretended causes? How greatly do their issues clash with each other and with the facts? No, none of them, whether severally or collectively, in much or in little, are the sources of tubercle.

The conclusion to which my inquiries and my observations all lead is, that the cause, the *only* cause, of tubercle is a vice of respiration. If the respiratory functions be properly performed, if the conditions prove normal, there is, *there can be*, no tubercle. Under no other conditions whatsoever, the conditions of respiration being healthy conditions, shall tubercle ensue. These healthy conditions, however, being habitually violated, the eventual and inevitable result is tubercle deposit now in the lungs, now in the lymphatic (more especially the bronchial) glands, the larynx, bones, joints, spine, the mesentery, the meninges, liver, spleen, pancreas, ovaries, testes, one organ or more. There is a certain lesion of the function of respiration, hence tubercle. *For to suppress the function of an organism is to disturb the harmony and unity of its parts, and so bring about its destruction*[a]. It is impossible for healthy respi-

[a] Vera, "Philosophie de Hegel," p. 191.

ration, or healthy life, to take place in an unhealthy, stagnant atmosphere. If we respire an atmosphere that has been respired before, by ourselves or others (and the oftener it is respired the more unfit for respiration does it become), the proper interchange of the oxygen of the atmosphere with the carbonic acid of the blood is interfered with, the oxidation of the waste is more or less impeded, and the tissues which have undergone retrograde metamorphosis are no longer sufficiently eliminated; the animal detritus, no longer properly expelled by the outlet of the lungs, nor adequately by any vicarious outlet, is retained in the blood. Yet here it cannot stay. The dead and wholly unorganized waste cannot be re-employed afresh, and hence is cast aside, *dead and unorganized*, and, under the designation of tubercle, is deposited throughout the living tissues; wherein, as well as in the general economy, it is productive of the evils and disturbance, the torture and the distress, ending finally in death, such as any other dead and unorganized matter foisted to the same extent amid the tissues might be expected to superinduce. *For in this product there are neither vessels, nor canals, nor tissue, nor fibres, nor laminæ, nothing, in short, which recalls the idea of organization, which is completely absent*[a]. These conclusions are supported by physiological as well as pathological data, nor is there anything in the pages of Lehmann, or Valentine, either of the Simons, or Liebig, which contravenes, but on the contrary, much that sustains them. There are two great processes going on simultaneously in the animal economy, namely, the absorption of extraneous, and the elimination of *effete* matter, which, being foreign to the organism, cannot, without danger, be long retained[b]. Histological inquiries, however important in their place, here lead only to negative results. They can only serve to determine that tubercle is amorphous and unorganized, so far, at least, as dead waste is so. It needs physiological investigation to determine the nature and conditions of the healthy vital processes, and pathological investigation to show how far these processes are invaded and interfered with. The result of this joint investigation, I submit, is the inference as to the formation of tubercles in the manner I contend for.

The importance of a pure atmosphere has been more or less conceded by medical and other inquirers for at least the last two hundred years. The admission, however, was made, as indeed it too generally still is, on grounds at once vague and

[a] Andral, "Clinique," tome ii. p. 12; "Pathologie," tome i. p. 430.
[b] Comte, "Philosophie Positive," §. Philosophie Anatomique.

unsatisfactory. It is no easy matter, observes Mayow, to determine the use of the respiratory act[a]. A still more remarkable man, however, went nearer to the matter than any of his predecessors—nearer, indeed, than most of those who have come after him. Servetus pointed out, long ago, how the blood came in contact with the atmosphere, *was purged of its impurities*, and assumed a scarlet hue[b]. It was admitted that pure air was desirable, nay, the senses bore testimony to the admission. But beyond this immediate testimony of the senses, few cared to go. *How* or *why* exactly pure air was requisite, few ventured, and fewer still were competent, to inquire. Even at the present day, misconceptions the most singular subsist, not only on the part of the general public, but on the part of medical men themselves. Of these misconceptions striking illustrations, were it not invidious to do so, might be adduced. The evidence of a very great number of inquirers, as I have conclusively shown in my Treatise on Consumption, is on record as to the production of tubercle from the habitual respiration of a foul, indoor, and previously respired atmosphere[c]. This I, for the first time, assert is not merely the occasional, but *the one constant factor*, the agency, in short, the *causa sine quâ non*, without which there can be no tubercle, but which, being present sufficiently often and sufficiently long, *invariably* induces tubercle in one or more of its forms. We continually witness the production of tubercles *thus* in our own species. Thus, too, that is, by subjecting them to the conditions aforesaid, can we induce tubercles, at any time, in the lower animals, and by inference arrive at the means of preventing them in man. The evidence in favour of these conclusions, as I conceive, is of the most varied, demonstrative character, and goes far to show that the atmospheric deterioration is consummated *within* doors, and very particularly, if not exclusively, in the sleeping apartments, wherein so large a portion of our lives is passed. In short, air previously respired and imperfectly, if at all, renewed, is *the* ever active, necessary precursor of tubercle.

My experience of tubercular phthisis, like that of most practitioners, has been very extensive. It is only during the more recent portion of that experience, however, that my attention has been directed to the production of tubercle from the *habitual* respiration of an ill-renewed, previously respired atmosphere. During these latter years I have met *no* instance of phthisis, *no* instance of scrofula, *no* instance of tubercle, in

[a] "De Respiratione," p. 36. [b] "Restitutio Christianismi."
[c] On the Nature, Treatment, and Prevention of Consumption.

short, which, upon investigation, when the opportunity was afforded me, did not turn out, to the best of my belief, to have the antecedents already insisted on. A dwelling may be comfortably, nay, luxuriously furnished; cleanliness, the most perfect; taste the most exquisite may reign within; the apartments may be at once spacious and numerous; yet, unless pure air be of the appointments, the rest will be of no avail. There is no substitute, as I must emphatically declare, for a frequently renewed atmosphere. I see and hear it frequently stated that, as consumption occurs on the greatest elevations, and in houses where the surrounding atmosphere is most salubrious, the condition of the air, therefore, has nothing to say to it. This, however, involves a *non sequitur*, and, consequently, a misstatement. The genesis or the non-genesis of tubercle has nothing in the world directly, and hardly indirectly, to do with elevation. Tubercle may occur at any elevation, and its absence may be secured at any elevation. It is of little avail, in respect of the production of tubercle, what sort of air subsists outside the dwelling, when the air *inside* is impure and unrenewed. Does it signify to the famished prisoner that the richest viands lie spread *outside* the dungeon wall? And of what avail is it to the panting lungs when barriers of brick and stone exclude the life-bestowing element?

Of cases such as the following I have witnessed very many. I visited S. last week, at the instance of his ordinary attendant. There was excessive dulness over the left lung, just three finger-breadths below the clavicle. The right lung was also tuberculous, but much less so than the left. The signs and symptoms otherwise, "the cough and the spit," the hectic, emaciation, and distress were those of tubercle of the lungs. S. was just fourteen years of age. I asked him, among other inquiries, to show me the room wherein he spent his nights. He led me to a small apartment, where the chimney was bricked up! The lower part of the window was a little open, but only on and after the hour of rising; for the upper part, as commonly happens, would not open; the door, also, was ajar; and, although air had been oozing in from the time of S.'s getting up, the odour, or rather stench, resulting from the occupation of the night, was but very partially dissipated. Upon being further questioned, S. informed me that he had only occupied this room, along with a little brother, for seven nights. "Show me, then," I said, "your previous apartment;" whereupon S. took me to a yet more elevated chamber, with a low and eaved ceiling, and a window that did not open above, and that was never, during sleeping hours at least, opened

below. The chimney was carefully plugged with a truss of hay, round which some coarse linen had been wrapped; while the bed-curtains were drawn, as in the room below! *Here I found that poor S. had slept for the preceding twelvemonth; and here, amid the foul and again and again respired atmosphere, was formed that deposit of waste in the lungs which, in all seeming, will bring his career, as it has already brought that of so many others, to an untimely close.*

If, as I affirm, it be determinable that *every* form of tubercle results from the habitual respiration of an ill-renewed, previously respired atmosphere, leading to the *retention* instead of insuring the expulsion of the dead and waste detritus of the organism, then it necessarily follows, by reversing this unhealthy condition, that the prevention of tubercle lies completely at our disposal. So long as the emunctories, and very especially the lungs, are in a position satisfactorily to perform their several duties, there will be no retention of the dead waste, and consequently tubercle, which, as I assert, consists of this accumulated waste, will *not* be deposited. This result, after all, is not more surprising than others which take place every day in the animal economy. Once we come to familiarize ourselves with the conception of the fact, it will no longer seem abnormal; *mis*conceptions will be rectified, and the new doctrine, as I trust, will take its stand among other older and equally accredited views.

Under all circumstances, the one thing, especially needful, is, by every means at our disposal, to stop, stay, and prevent the tubercular degeneration altogether. I need not here insist on a sufficient dietary, abundant clothing, exercise, tonics, and remedial measures in their place; I shall simply confine myself to the question of atmospheric supply. Here the problem we have to resolve is, day and night, how to furnish air pure as the organism demands it, pure as the great body of the atmosphere. There are but two ways of doing this. One is by admitting pure air into our houses, and the other is by living daily a good deal in the open ocean of the atmosphere. People are as yet undecided, and indeed it is still matter of uncertainty, as to the best means of effectively securing house ventilation by day. At night, however, there is no difficulty whatever about the matter; it is only necessary, more or less according to the state of the wind, to pull down the window freely, and, except while dressing and undressing, to keep it so, winter and summer. *With warm, abundant night-coverings*, there is not a shadow of risk—there is no risk of rheumatism, none of bronchitis, in short, no risk whatever. We spend so

much of life in our bed-rooms, that with a pure bed-room atmosphere—*pure and fresh, in short, as the outer atmosphere itself*, for here nothing less will suffice—there would, I believe, with reasonable care and attention otherwise, be *no* tubercle, and consequently *no* consumption whatever! I am of opinion that, with this due care and attention, consumption and scrofula —in other words, tubercle—are, reasonably speaking, just as preventible as broken limbs, burns, inflammation, in short, any casualty. But nothing short of this care and attention will suffice—nothing, indeed, short of the arrangement of our dwellings and our habits so as at least to realize the one indispensable requirement of an unadulterated and constantly renewed atmosphere. This so desirable, and, in truth, indispensable hygienic revolution being once consummated, it would free our hands of tubercle in all its protean aspects, and leave us at comparative liberty to deal with the remaining and, unhappily, all too numerous forms of organic and functional disease.

Art. XVI.—*A Comparative View of the Effect of some Remedies used in Epilepsy*[a]. By Jonathan Osborne, M. D., King's Professor of Materia Medica; Physician to Mercer's Hospital, &c., &c.

Τοῖσι εμφανέσι τὰ μὴ γινωσκόμενα τεκμαιρόμενος.—Herodotus, II. 33.

In diseases obscure in their nature, and in which the treatment must, of necessity, be for the most part empirical, it is much to be regretted that medical records are still so defective. Various remedies are set forth by authors, one copying from another, but the evidence upon which their repute has been originally founded, or that by which it may still continue to be maintained, remains uncertain, and resembles more a general rumour than the sober and subdued voice of science. In the meantime the practitioner, in making his choice, has none but the most vague and often contradictory guides to follow. Hence, if a remedy at the first trial fails him, his confidence is at once shaken, he lays it aside, perhaps to substitute for it something far inferior, and which may have always proved ineffectual, but yet holds its ground from the weight attached to the

[a] Read at a meeting of the Association of the King and Queen's College of Physicians, May 7, 1856.

original recommender; thus, often resembling the giddy public in their choice of a physician, who, to use the words of Dr. Johnson, neither know the merits of him whom they select, nor the demerits of him whom they reject.

One mode of remedying this defect would be to construct, with respect to such diseases, tabular views of the treatment pursued at different times, and of the results obtained. The confidence to be placed in such tables would be regulated by the extent of the field of observation, the candour and freedom from bias, and the care and discrimination of the reporter. Then as the general results, the value of the remedies employed could be expressed in numbers exhibiting in the form of decimals the proportion of cases in which they had been found successful, and consequently, their real merit and importance. Thus, a success of 23 out of 100 cases in which a medicine was tried would be represented by the decimals, ·23; a uniform success without exception by unity; and total failure by ·00. Thus, the relative merit of different remedies used in the same disease would be exhibited at one view, and we should no longer be dependent on expressions which are so far from having a uniform meaning, that even the same individual may be often detected applying them without either accuracy or consistency.

In the Encyclographie of October, 1852, I found a review of a paper on epilepsy by Dr. Herpin, from which it appeared that he had made a statistical table with respect to that disease when treated by oxide of zinc and some other articles. I was strongly impressed by the value of his communication. He has performed, with regard to this remedy in particular, what I have endeavoured to perform, but with inferior opportunities, with regard to two others which do not appear to have come under his notice, and I think in the first instance it will be acceptable and instructive to place on record a short epitome of Dr. Herpin's paper.

The proportion of cases which he found to resist every kind of treatment adopted was only one-fourth of the entire number presented to his notice. The prognosis was always most unfavourable in proportion to the duration of the disease and the frequency of the fits. The remedy which proved itself superior to all others tried by him was the oxide of zinc. The other remedies tried were the ammoniuret of copper, the salts of valerianic acid, *Selinum palustre*, the broiled flesh of the mole (which has a high provincial reputation), wormwood, hyoscyamus, and ammonia. He has not even noticed digitalis or cantharides, the two remedies which occupy the most prominent position in my collection of cases. The oxide

of zinc was first introduced by Gaubius, who derived his knowledge of it from a charlatan. Of 42 cases treated by it, Herpin announces that 28 terminated in complete recovery, being a proportion of about 66 per cent. He found it to be perfectly innocuous. He gave it to the amount of 6 grains daily, which was sometimes followed by slight nausea or diarrhœa. Generally he began with small doses, and in the form of pills. It was best taken after meals, and he never despaired of its success or relinquished its use in any case till after a perseverance of two months. He employed the *Selinum palustre* in 10 cases. Of these, 4 were cured, i. e., 40 per cent. This plant, a native of the north of Europe, has a root endowed with purgative powers, so as to be compared with scammony by Boerhaave. Dr. Herpin's dose was about four drachms, sometimes increased to one ounce, if tolerated by the stomach. The ammoniuret of copper he gave in 12 cases, and succeeded in 4, being 33 per cent. With preparations of valerian he succeeded in 4 out of 11 cases, being 36 per cent.

I have constructed a Table of all the epileptic cases which came under my treatment in Mercer's and Sir Patrick Dun's Hospitals, and of which sufficient records were preserved, in order to give an accurate account of the results of the treatment. The number of them is 26. In it I made no selection, and it accordingly represents the entire of my experience of the disease in those establishments during the last twenty-seven years. I have not added to it any case occurring in private practice, not only on account of the greater certainty afforded by hospital discipline, but also because those cases were witnessed by classes of students in whose presence the facts were recorded. In those instances wherein it is stated that the disease was removed, that result was inferred when the fits did not recur during the patient's stay in the hospital, which was always prolonged as much as possible, in order to ascertain whether the improvement was only temporary or permanent.

The origin of the disease, although invariably sought for and recorded, yet in a great proportion remains undecided. The irritation of worms was evidently the cause in two cases, and these, when subjected to appropriate treatment, terminated in recovery. In some (and these the most intractable), frights at an early age, or sudden mental emotions, but, in the majority of females, impediments to the establishment of the menstrual function at the commencement of puberty, appeared to have occasioned the disease. No case has been taken into the Table in which the loss of consciousness was not complete. The length of the fits was subject to great variation; but in this

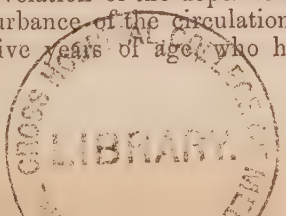
one particular, namely, total abolition of consciousness, they all agreed. To illustrate the different forms under which epileptic fits occur, I may mention two cases which have come under my observation in private. In one, a lady, unmarried, of nearly thirty years of age, was several times during each week, and very frequently when seated at dinner with the family, suddenly deprived of sight, of hearing, and of the knowledge of surrounding objects, but yet without any convulsive motion; and to the company present she appeared to be only in a state of momentary mental abstraction. On these occasions her friends never interfered, being well aware that any efforts on their part to prevent or shorten it had never had any effect. She has since been married, and lives abroad; and I am not informed as to her present state. When she became aware of the epileptic character of the affection, every precaution was used to conceal it, and to make light of it, even to her medical adviser. Another case was that of a gentleman of independent means, who during the last five or six years is seized, at irregular intervals, with fits of total insensibility, accompanied by a sudden closure of his mouth, and a smacking sound made by his lips and tongue, lasting for about half a minute, producing great astonishment in the bystanders, but causing himself no annoyance, as he seems scarcely to be aware of any interruption to the current of passing events. This state of things, however, has become a source of deep anxiety to his family, the fits of late having increased both in frequency and duration; and, on one occasion, when sitting at the head of his table with some friends, having suddenly dropped whatever was in his hand, he continued so long moving his mouth and tongue with his eyes fixed in a vacant stare, that concealment was impossible, although, on his recovery, by the desire of his friends, no one affected to have noticed it.

Three cases of catalepsy came under my observation, not included in the Table,—one produced by a dose of Indian hemp, the others presumed from mental agitation; all in young women, and all terminating favourably. This form of epilepsy must necessarily be of great rarity, from the rare conjunction of causes required to produce it. For, to maintain the fixed position in which the limbs continue according as they may happen to be placed, there must be an exact equilibrium of action between the extensor and flexor muscles. But as the latter are the most powerful, there must be such an amount of increased force imparted to the former as shall exactly compensate the latter, and no more; a state of things that can hardly ever be expected to take place.

In one case the insensibility, although complete, yet was not only unaccompanied by convulsions or fixedness of any kind, but allowed the patient to walk about the apartment in a state resembling somnambulism. In the great majority, however, the convulsions were such as have been frequently described, varying in intensity, and sometimes most violent, commencing with a scream, and a fall on the occiput; and then followed by powerful alternate contractions of all the flexor muscles, the closed hands striking the patient's face or breast, and sometimes caught within his teeth, suggesting the idea of demoniacal possession. The foaming at the mouth was observed in most, yet in some to so slight a degree as to prove it to be no sure diagnostic mark of the disease. It must also be observed, that it did not occur only in the severest fits, as should have been the case, if resulting from the convulsive motions of the mouth. Increased secretion from the salivary glands belongs to several affections of the nervous system besides this, as mania, tetanus, and hydrophobia.

The pathological state observed in two fatal cases which occurred was as follows:—In the first, that of a servant-man, aged 36, who died in a fit on the third day after his admission, there was an abscess at the surface of the right hemisphere of the brain, behind and above the temple; and adhesions of the skull, the dura mater, and brain in that part, so that they could not be separated without rupture. The abscess was of about the size of a small almond. It was filled with yellow pus, had thickened edges, apparently of old formation; and from it extended a softening of the medullary structure inwards and towards the centre, to the depth of above an inch. The ventricles contained more fluid than usual; the choroid was pale; the surface of the brain remarkably free from moisture. No other unhealthy appearance could be detected in any part of the body. His fits commenced six months before admission. In the intervals between the fits after admission, he completely recovered his sensibility, and made no complaint of pain in the head, but for some months previously his habits had been unusually reserved, so as to cause suspicion of insanity. The fits were as usual in epilepsy, except that the foaming at the mouth was less, and that the right arm was more convulsed than the left. The bowels resisted all means used to open them while he was in the hospital.

The second fatal case was one of commanding interest, as affording a distinct revelation of the dependence between the epileptic fit and disturbance of the circulation. The patient was a woman, fifty-five years of age, who had fits varying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from one in ten days to three in one day, and who had the first fit when stooping, about ten months before her admission to the hospital. The pulse at the wrist was 34, sometimes 24, with two pulsations of the jugular vein for each one of the arteries, the first of these twice as long as the second; the heart's motion irregular, both in rhythm and force, the long sound and impulse synchronous with the arterial pulsation. The duration of the fits was about four minutes; the convulsions confined to the face, preceded by a sense of buzzing in the head, and succeeded by a sound of bells; each fit attended with an almost total cessation of the heart's action, and followed by violent palpitations. Extremities cold; lips livid and congested.

The treatment of this case, which was the first in the Table, and occurred in 1829, was tentative and palliative, consisting at one time of leeches and depletions, and at another, of wine and cardiacs. A great diminution of frequency of the fits was obtained, and she was dismissed, but returned in two years afterwards, and she died suddenly in one of the fits.

On examination, no morbid appearance was observed in the head, except that there were about two ounces of transparent fluid in the ventricles, and pellucid fluid under the arachnoid, which, however, was free from opacity. In the heart, although the case occurred before the discoveries of modern pathology with regard to the muscular substance of that organ, yet enough is recorded to show it to have been at the bottom of the disease. The right cavities of the heart were distended to a rare and enormous extent, so that that side of the heart appeared distinct and as if separate from the left; while the valves were healthy, except those of the aorta, in which were some points of ossification, but not so as to impede their function. The lungs were healthy.

In almost all the cases, except those produced by worms, there was more or less permanent disturbance of the circulation, either from debility of the heart, or from excitement consequent on the establishment of the sexual functions, or from a state of nervous susceptibility, produced by shocks or mental emotions, and acting directly on that organ, In all the cases, without any exception, in which the patient could be examined, either immediately previously to, or during, or after the fit, it was evident that there was a high degree of disturbance in the action of the heart at that time, and yet that this bore no proportion to the severity of the convulsions, being often highest when they were lightest.

Some described the fit as preceded by a sense of filling of

the head; others felt as if it was emptied; others had a reeling; while in many the loss of sight was the only thing to be remembered before total insensibility came on. Dr. Reid has mentioned that he was able to stop the fit by pressing strongly under the epigastrium. I found that I could also shorten all the fits in which I made the experiment, by pressing the fingers steadily on the eye-balls.

To sleep after the fit was universal, except in the case of those slight fits already referred to, so that in our studies on the disease it appeared that it should be considered as part of the fit, and as constituting its appropriate termination. This is the more to be remarked, because the ordinary facility of sleeping usually remains unimpaired, and continues as usual. The fits do not occur when the patient is most alert and wakeful, but rather come on when the usual hour for sleep is approaching, as in the afternoon or evening, and not unfrequently during the night. It would appear also that what prohibits sleep has also the effect of prohibiting the accession of epileptic fits. Thus, in two cases not included in my Table, in which epileptics with frequent fits were attacked with fever while in hospital, and in which the fever was succeeded by a relapse in one, and a tedious convalescence in the other, presenting full opportunity for observing the fact, *the fits never came on during the fever, or during the progress towards recovery; but as soon as convalescence was completely established, they resumed their visits as usual.* Certain it is, that at one time, when under the influence of certain theoretical views, I tried opium in epilepsy in half-grain doses, frequently repeated, it appeared most decidedly to aggravate the disease; and I find in a report of certain military surgeons in France, that in epileptics the inhalation of chloroform was found, not to produce the ordinary state of anæsthesia, but, instead of it, an epileptic fit; and that it was in consequence used in their department as a test of malingerers who pretended to be epileptic.

The treatment adopted in the twenty-six cases of the Table was, in the first instance, directed to the removal of the exciting cause, whenever that could be ascertained; for example, in two cases which yielded to anthelmintics. When the action of the heart was decidedly and permanently enfeebled, as in the last of the fatal cases just mentioned, it was evident that depletions were inadmissible, except when required to meet a temporary or topical indication. From the certainty that epileptic fits may be produced in consequence of enfeebled circulation, and the probability that from the coexistence of insensibility and slowness of the pulse they may readily be

considered as apoplectic by a practitioner seeing them for the first time, we may indulge in many sad reflections on the treatment most frequently adopted without any discrimination in such cases.

Exclusive of those peculiar cases, and where no one function seemed at fault, the remedies were selected from those which appeared to have proved beneficial in other hands, even though their mode of action was as obscure as the disease itself. The chief of those was the nitrate of silver, along with sulphate of zinc, and some other articles of the same class which I used within the first twelve years up to 1842. I then fell into the practice of giving digitalis, from observing the tumultuous action of the heart accompanying the fits, and moreover induced by a remarkable statement made by Vogt[a], that patients under digitalis become capable of resisting narcotic influences; so that the same individual who otherwise could hardly take two glasses of wine, could, under its influence, take a bottle without being affected. Digitalis had been mentioned in Parkinson's Herbal among the multifarious remedies for epilepsy, for which, as for other most incurable diseases, the old receipt-books have always offered the greatest number of cures. The strongest statement, founded on a fact in its favour up to that time, was in a case published by Dr. Sharkey, formerly of this city; while, on the other hand, it had been unfavourably reported of by Dr. Currie[b] and by Dr. Perceval[c]. When I recommended the use of it, I had not the advantage of the valuable paper of Dr. Corrigan on the Use of Digitalis in this disease, published in 1845 in the Dublin Hospital Gazette[d], giving six cases in which it appeared to be successful; but as the dose which I gave was much less than that given by any of the physicians now named, the results I have obtained must be considered as proceeding from a different application of the same agent. My largest dose was two drachms of the infusion of the Pharmacopœia thrice in the day. This seldom, within ten days, produced intermission or irregularity of the pulse; and often, instead of retarding it, appeared at first to increase its frequency; thus lending a confirmation to the statement of Dr. Saunders, who said that in 2000 observations on it he always found slowness of the pulse preceded by increased quickness. This increased quickness, however, is no proof that it is acting the part of a stimulant.

[a] "Pharmakodynamik," ii. 189.
[b] Transactions of the Medical Society, vol. iv.
[c] Edinburgh Medical and Surgical Journal, vol. ix.
[d] May, 1845.

On the contrary, it would appear to arise from its direct sedative action on the heart, as we see the same increased rapidity of pulse often from debility in hemorrhages, in low fevers, and in the fluttering pulse of the dying. The neglect of this first action of digitalis, from the attention being exclusively directed to the slowness and irregularity of pulse which afterwards ensue, has led to the opinion that it is endowed with a peculiar faculty of reserving its action for a time, and then of oppressing the heart with the concentrated effect of all the former doses that may have been taken. This presumed accumulative action is so different from what takes place with other narcotics, the law of which is to lose rather than gain in effect by constancy of use, that probability alone would rather decide that the irregularity and sinking of the heart's action from digitalis is but a further effect of the continuance of the medicine, and not a sudden operation of what had previously been inert. The dose given by quacks, and originally derived from Parkinson's Herbal, was 4 oz. of the fresh leaves beat up and infused in a pint of boiling beer for eight hours. Of this, 4 oz. were given every third day, along with 15 grains of polypody root. As may readily be supposed, it caused violent and long-continued vomiting. Even the doses used by the physicians now named have appeared to me unadvisable from the hazard attending such, not allowing the medicine to be persevered in, so as to produce its peculiar and most beneficial effect with reference to this disease. Their dose has been a wine-glass full of the infusion, increased to 3 oz., every night. Now, according to the researches of the late Dr. Burton, of St. Thomas's Hospital[a], on the corresponding doses of different medicines, from actual trial, it appears that a grain of powdered digitalis has for its equivalent 80 minims of the tincture, and only 2 drachms of the infusion; so that my doses, although continued for many weeks without causing any serious failure in the action of the heart, yet were not so insignificant as many might suppose.

Among all the remedies proposed for epilepsy, however, I cannot find the name of any modern author who had used cantharides except Clara and Johnson, quoted by Merat and Delens, and therefore, some explanation of my reasons for trying it may be expected. Although the truth of the ancient adage cannot be denied, viz., *Melius est anceps remedium quam nullum*—yet some probability of success should be presented either from analogy or from testimony of others. My analogy was derived

[a] London Medical Gazette, 1842.

in the first instance from a theory of sleep, a function with which I believe epilepsy to stand in the closest relation, which theory, after it had cost me more thought than I ever expended on any other single subject, I published in 1849 in the London Medical Gazette (now deceased). No one took any notice of it except Dr. Simmons of Bristol, the author of a most interesting work on Sleep, who had the kindness to express a flattering opinion of it; but with that exception, it appears to me that no one has ever read it, or been at the trouble of understanding it; hence, I consider it as not only dead, but actually buried. Nevertheless, having incidentally mentioned the subject, I cannot refrain from expressing my conviction that the doctrine therein stated will rise again, and at some time hence, be ushered before the world, with microscopical preparations and a code of new names derived from the Greek, and perhaps some book-worm, in endeavouring to strip the future discoverer of his plumage, may gratify his spleen by announcing that it was first brought forward in a paper never read, and long since forgotten, and overwhelmed in a mass of medical writings, *stratum super stratum*, in one of the back volumes of the London Medical Gazette.

The theory is this, that sleep is produced by turgescence of the choroid bodies, they being essentially erectile structures, in the lateral and third and fourth ventricles of the brain, compressing the origin of the spinal marrow and of the nerves proceeding from that region; whilst at the same time, by the occupation of so much of the cavity of the cranium, the quantity of blood circulating at the surface of the hemispheres is proportionately diminished, and thus a double impediment is offered to the perception of external objects, and communication with the external world is cut off during the portions of time required for nutrition and repair of the nervous centres.

This theory was supported by many arguments: first, that by reasoning *a priori* (as in Harvey's arguments for the circulation of the blood), it fully accounted for all the phenomena of sleep, which had never hitherto been explained in any other way. Second, that in a case in which a considerable portion of the skull had been taken away by the trephine, the brain was observed always to rise on going to sleep, and to sink on awaking. Third, that the structure of the choroid bodies and the looped vessels in it are only found in erectile tissues, or in parts adapted for great distention. Fourth, that after death the ventricles are not found marked with impressions or cavities corresponding to the choroid bodies, as would necessarily be the case if they occupied the same place during life as after

death, and that hence during life they must have constantly been changing their dimensions. Fifth, that the lining membrane of the ventricles is epithelial, and secretes a mucous rather than a serous fluid (Marcet), thus showing it to be intended for the motion of a body within it. Sixth, that the rising of the pulse which takes place (generally about 10 beats per second) at the moment of falling asleep shows that it is not merely a negation of wakefulness, much less a state resembling hybernation; but, on the contrary, a state liable to be prevented by debility, and often the best indication of returning strength. Seventh, that the order in which insensibility of the different organs comes on is exactly such as ought to be from the ventricles being the place to which pressure is first applied. Eighth, that in all the animals in which we observe the phenomena of sleep, both the position and firm structure of the tentorium are exactly suited to support the turgescence of the choroid bodies, in maintaining pressure at the place required to produce insensibility to all external objects. Ninth, that falling asleep is attended by a pleasurable sensation, such as might be produced by the filling of an erectile structure within the head, and that this is perceived most when the pulse rises, and just before total insensibility ensues. Tenth, that all the phenomena of profound sleep are witnessed in coma when the ventricles are distended by fluid, which state differs from sleep only in this, that the patient cannot be awakened. Eleventh, that the extreme rarity of adhesions or other obstructions within the ventricles corresponds to the rarity of cases in which sleep has become totally impossible. Twelfth, that cases have occurred remarkable for difficulty of obtaining natural or refreshing sleep, in which the choroid was found diseased[a]. Thirteenth, that the very nature of the function imposes a difficulty, if not an impossibility, of exhibiting the presumed turgor of the choroid bodies by vivisection or post-mortem examination, as in either case the state of sleep of the animal must be broken up before the head can be opened and the parts exposed to the view of the anatomist.

Between sleep and the epileptic fit there are points of resemblance. In both there is a state of anæsthesia more or less complete; both are beyond the control of the will; and in both, convulsive motions occur, which in the experience of every one are frequent just on becoming insensible in sleep. The main difference, marking the one as a diseased and the other a

[a] Detailed in the Paper.

healthy state, is the suddenness of the epileptic seizure, the greater amount of convulsive action, and the greater tumult of the heart; but their similarity is developed at the close of the epileptic fit, which almost uniformly terminates in a profound sleep, which cannot be distinguished from that of health.

Waiving, however, any further notice of this theory, which the reader is at liberty to entertain or to reject according as he thinks fit, in cantharides the specific effect on certain erectile tissues may well be suspected to be accompanied by a similar effect on other tissues of the same kind elsewhere, supposing such to exist. Epilepsy is mentioned by Vogt among the spasmodic diseases in which it has been used in Germany. There is a well-known combination of tincture of cantharides and compound tincture of bark, one part of the former and two of the latter; twelve drops to be taken, gradually increasing the dose till strangury is produced, which, as I have witnessed, has sometimes the effect of stopping the fits of hooping-cough as soon as strangury is produced, when it must be laid aside. Cantharides have also been commended in tetanus by German authors; and in Hungary and Poland are used with the utmost confidence by the inhabitants in hydrophobia, in which affection the blind temerity of our practice is only to be excused by the haste and confusion with which each case is met by practitioners necessarily ignorant of a disease so rare in this country; and it is to be much regretted that the line of research opened by Dr. Reid, of this city, in his able and original work, has never been adequately followed up with respect to this and other spinal diseases.

One of the first cases in which I tried cantharides was not cured, but yet this was well suited to evince their power over the disease, for under their use longer intervals were obtained than from any of several remedies tried. In this case the tincture was pushed to 80 drops thrice daily, which, although continued for some weeks on each occasion, yet caused no strangury or other inconvenience. Believing cantharides and digitalis to act on the two distinct portions of the circulating system most concerned in epilepsy, I was soon led to combine them, and with the effect (as it appeared to me) of both correcting the irregular action of the heart, and, at the same time, of producing a beneficial change in the capillary circulation belonging to the seat of the disease. Besides, digitalis was the most valuable of all the medicines I had ever used as direct emmenagogues in cases of amenorrhœa accompanied by palpitations, when given for about a week before the menstrual period, and its value is then much increased by the acetate of

ammonia. Hence the formula used in the many cases attended with derangement of this function was the following:—Infusion of digitalis, and water of acetate of ammonia, of each, two ounces; pennyroyal water, four ounces; mix. One ounce to be taken mid-day, evening, and night; and the tincture of cantharides to be added, commencing with five drops, and increasing by one drop each dose. When it appeared desirable to give digitalis in a lesser and cantharides in a greater proportion, then the following was used:—Infusion of digitalis, three ounces and a half; tincture of cantharides, half an ounce; mix. Forty minims to be given in milk thrice daily, and progressively increased.

In one of the cases, a middle-aged woman, with feeble circulation, in which digitalis was inadmissible, the tincture of cantharides was combined with decoction of senega and cardiac mixtures, and given till slight strangury took place. The fits ceased, and she was dismissed at her own desire. She was afterwards seen drunk in the street, and stated that about a week after leaving the hospital they had recurred. She being now in a state of great excitement, with five or six fits in the day, was placed under the combination of cantharides and digitalis. Under this treatment the fits ceased; she was again dismissed, and has not been heard of since.

In most of the cases the patient was subjected to a cold douche every morning and evening. The direction was to pour a stream of cold water on the occiput, the head being bent forward, for about twenty seconds; thus there is reason to believe that the contractile powers of the subjacent vessels within that portion of the head may be excited, and the free circulation of the blood through the sinuses of the brain promoted.

The conclusions to be derived from my Table of cases, to which the foregoing observations refer, is, that while Dr. Herpin's review of his treatment of epilepsy is favourable to the oxide of zinc, as showing a success of 66 per cent., the cases in my Table treated by digitalis or cantharides, either conjointly or separately, being in number twelve, present the result of removal of the fits in ten cases, that is, 83 per cent., a diminution of them in two, i. e. 16 per cent., and in no case did they fail in producing some abatement.

The other cases of my Table being those treated by all the other means used, except the above, and (excluding the worm cases) being in number twelve, show the fits removed in two, i. e. 16 per cent., and diminished in same number and proportion; while the number in which no benefit was derived was

eight, being a proportion of total failure amounting to 66 per cent.

The conclusion from the above, then, is manifestly in favour of the treatment by digitalis and cantharides in epilepsy, due regard, however, being had, in the first instance, to the primary indication of removing the exciting or predisposing causes of the disease, when these can be discovered.

Art. XVII.—*Contributions to Craniology.* By Humphry Minchin, A. B., M. B. T. C. D., Licentiate and Fellow of the Royal College of Surgeons in Ireland; Medical Superintendent of the North Dublin Institution for Children, Glasnevin; Lecturer on Anatomy in the Dublin School of Medicine.

"Τῶν ἀνθρώπων αἱ κεφαλαὶ οὐδὲν ὁμοίως σφίσιν αὐταῖς, οὐδὲ αἱ ραφαὶ τῆς κεφαλῆς παντων κατὰ ταυτα πεφύκασιν."—'ΙΠΠΟΚΡΑΤΗΣ.

In the following pages it is proposed to bring under the notice of the profession some circumstances connected with a certain abnormity in the development of the human cranial bones; an abnormity which has been found in several instances to be associated with a very peculiar configuration of the head, and which, in its relation to pathology as well as to physical ethnology, appears to present some features of interest.

The consideration of varieties and aberrations occurring in the structure of the several parts which compose the human frame, presents a wide field of interesting investigation to the anatomist and physiologist,—whether the tendency of such anomalous formations be to exert an influence upon development in respect of excess or deficiency of parts, or upon the mere bulk or volume, the general conformation, or the relation of the several parts, and their connexion one with another, or in whatever way a portion of the human structure may appear to fall short of its perfect model or type. To the student of comparative anatomy, also, many of these anomalies of structure in the human frame are not without interest, affording, as they do, in several instances, remarkable examples of the similarity which subsists between some special departure or deviation from the human type of organization, and a conformity to the model which, in a lower class of animals, is observed to be the usual normal structure. Into the general detail of this subject it is not my intention to enter in the present communication,

further than to make a passing allusion to some points in which a singular abnormity of development in the human cranium—a few instances of which have come under my observation, and which may be considered worthy to be put upon record—appears to have its parallel in the skulls of some of the inferior orders of Mammalia.

In examining the ossific condition of the human cranium at the time of birth, compared with that of most other parts of the bony framework at the same period, we cannot fail to recognise abundant evidence of that special design which has provided that the organs most essentially important to healthy vitality shall be furnished with the most complete and perfect protection against external injury; here also we may see that while the provisions against injuries to the brain from outward accident are adequately supplied by the partial yielding of the bones on the application of an impinging force, this same condition of the cranial parietes is made subservient to the requirements of a more or less rapid increase in the size of the brain. In accordance, then, with this natural provision, cerebral development and cranial growth, from numerous centres of ossific radiation, proceed, as it were, *pari passu*, until at length the full completion of the former is followed by an arrest of further bone growth, save that which, at varying periods of life, may accompany the partial or complete consolidation of the sutures.

That the observance of the laws which govern the growth and development of a structure occupying the important position of the human cranium, that "golden bowl" which is destined at once to contain and to protect a part endowed with the most delicate, beautiful, yet mysterious organization—that the observance of those laws should admit of deviations, in some instances to a very considerable extent, may reasonably be inferred from a contemplation of what is daily observed with regard to the occurrence of monstrosities and abnormities in other regions of the body. At the same time it is usually perceived that wide departures from the ordinary type or model adhered to in the development of the cranial bones are commonly associated with other and more serious malformations, so as altogether to exhibit a condition which is plainly incompatible with a persistence of the functions of life beyond a certain period, generally of very limited duration. A widely different result takes place in those cases where the deviation from normal shape has been but slight, and is not of necessity accompanied by a failure of brain development, but appears rather to be associated with an unusual want of symmetry in

the form of the cranium, a preternatural development of one region, or an abnormal degree of flatness, such as we sometimes find in the posterior part of the head. This deviation from symmetry sometimes takes place to a considerable extent independently of the presence of disease, one lateral half being as it were pushed forward, so as to present an excess of frontal, and a deficiency of occipital development; while the other half, although equal in antero-posterior diameter, projects at the back, while it appears to recede in front. Other varieties of form, though, perhaps, not so frequent as this, may often be observed in young crania; and it would appear that the statements of travellers—regarding the manner in which the inhabitants of some countries[a] have contrived to effect, through mechanical means, a gradual, but decided modification of the shape of their infants' heads—have, until within a very recent period, tended to dispossess the minds of anatomists of the idea that natural causes may have had some share in the production of many analogous configurations; and we should, therefore, be justified in attributing many of the obliquities and deviations from symmetric form[b], which are presented by the crania of infants and children, to causes wholly unconnected with extrinsic agency.

But the most remarkable modification of cranial development, unconnected with diseased action, and one which I believe to be by no means of very rare occurrence, is that which I shall endeavour now to describe. In these heads the vertex is raised into a sharp and narrow ridge, or carina, while the frontal region is advanced so as to overhang the features; the occiput is prolonged into a descending prominent convexity, the lateral portions of the head being, not expanded as in hydrocephalus, but as it were flattened and apparently collapsed, so as almost to convey the idea that at an early period of life some compressing force had been exerted on these parts, and had been maintained during the whole period of growth, so as to limit the process of cranial enlargement in a transverse direction. This restriction of the bi-parietal measurement, therefore, appears to be compensated for by an excess in the length of the antero-posterior and the vertical diameters.

The peculiar cranial configuration just described appears to differ most materially from most of the others to which

[a] A full discussion on this subject may be found in Blumenbach's work, "De l'Unité du Genre Humain et de ses Variétés," p. 220, *et seqq.*

[b] Practical anatomists are well aware of the fact that a truly symmetrical cranium is hardly ever to be met with; also, that the deviations from justness of form in this respect are usually more considerable in young than in adult crania.

allusion has been made, in this particular feature—that, however strikingly it may deviate from what we are accustomed to consider as the usual normal shape, it does not present any appreciable degree of obliquity; on the contrary, it exhibits, both in the front and the back view, a high degree of symmetry: moreover, I expect to be able to show presently that there are sound *anatomical* reasons for placing this abnormity of shape in a separate category.

Whether the singular form of cranium now under consideration may not be found to bear a close resemblance to the "macrocephalus" or long head, which is spoken of by Hippocrates, I shall now proceed to consider. That a certain ancient tribe, who inhabited a district not far from the south-eastern shores of the Black Sea, was characterized by the possession of remarkably elongated heads, we have abundant historical proof. Hippocrates, however, is the only writer who has given us anything like a description of this remarkable race. In his treatise "Περ' αερων, ὑδατων, τοπων," the persistence of the curious configuration of the heads of these people is accounted for, on the principle that there is good reason for assuming that a peculiar conformation of the head, although originating at first in an *artificial* mechanical distortion by means of pressure, and continued thus through several successive generations, will become at length perpetuated by hereditary transmission. Without committing myself to an implicit adoption of the doctrine thus laid down by the Father of Physic, a doctrine to which several physiologists of modern times have subscribed their assent[a], I shall quote the passage in which this ancient people is described:—

"I will pass over the smaller differences among nations, but will now treat of such as are great either from nature or custom; and first, concerning the macrocephali. There is *no other race* of men which have heads *in the least resembling* theirs. At first, usage was the principal cause of the length of their head, but now nature co-operates with usage. They think those the most noble who have the longest heads. It is

[a] Buffon, for example, has adopted the Hippocratic theory with but slight modifications.

Dr. Tyler Smith, in his Lectures on Obstetric Medicine, says:—"Other influences, besides civilization and education, have an influence upon the size of the head. The Caribs flattened the foreheads of their children, and the continuance of this practice through succeeding generations produced a *natural* flattening of the anterior part of the head, until the Carib infants were *born with flat heads.*"—*The Lancet*, May 17, 1856, p. 533.

Dr. L. A. Gosse also espouses the Hippocratic doctrine in its full extent. See his "Essai sur les Deformations Artificielles du Crâne." Genève, 1855,

thus with regard to the usage: immediately after the child is born, and while its head is still tender, they fashion it with their hands, and constrain it to assume a lengthened shape by applying bandages and other suitable contrivances, whereby the spherical form of the head is destroyed, and it is made to increase in length. Thus, at first usage operated, so that this constitution was the result of force; but in the course of time it *was formed naturally*, so that usage *had nothing to do with it*." He then endeavours to account for this (which he has admitted to be a) *natural* phenomenon according to his celebrated hypothesis, which supposes that all the peculiarities of bodily form and feature, including distortions and accidental structural imperfections, are of necessity transmitted from the parent to the offspring, and he argues:—"If children, then, with bald heads are born to parents with bald heads, and children with blue eyes to parents who have blue eyes; and if children of parents having distorted eyes squint also for the most part; and if the same may be said of other forms of the body,—what is to prevent it happening that a macrocephalous child should be produced by a parent having a long head? But *now* these things do not happen as they did formerly, for the *custom no longer prevails*, owing to their intercourse with other men"[a].

There is something not quite consistent in the several statements just quoted; for, if we are to believe that during a certain period the elongated form of head was a *natural* production, and that usage had nothing to do with it, it is difficult to recognise a logical sequitur in the final assertion which attributes the discontinuance of a natural phenomenon to the desuetude of a barbarous practice. That the cranial form *was natural*, I have no doubt; the circumstances connected with its *origin* and its *disappearance* shall be considered further on.

The occasional occurrence of a *natural* macrocephalic configuration in individuals of our own race and in our own times will be admitted to possess some interest, inasmuch as we have been thus furnished with the means of investigating the anatomical characters of these crania, with a view of ascertaining the probable cause of their singular shape; for this presents not only a wide deviation from the usual normal configuration on one side, but also a remarkable unconformity to *every known species of artificial distortion* on the other.

I shall therefore proceed to illustrate, by a reference to some cases, what I conceive to be a most remarkable anatomical character of these heads, and one which, as far as I have been

[a] Adams' Hippocrates (Sydenham Society edition), vol. i. p. 207.

able to ascertain, has not been made the subject of any published memoir.

About four years ago, a child named John W., aged nine years, came under my care, and, as his head exhibited an example of this singular and somewhat grotesque configuration, I took advantage of the period of his convalescence from fever to obtain a sketch of his head in profile; the circumstance of his hair having been recently cut off rendering the peculiarity of cranial outline more evident.

Fig. 1.

The accompanying woodcut represents accurately the very great elongation, as well as the increased height, of which I have spoken, and in this case the lateral regions exhibited a considerable degree of flattening or compression. This boy, it may be observed, is at present (Sept. 1856) in full health and vigour, and remarkably quick and intelligent; nor has he been known to evince any symptom leading to the suspicion of the presence of cerebral disease. My attention having been thus incidentally directed to this peculiarly elongated form of head, I endeavoured to obtain some information regarding the early history of this patient, and with the following result:— No remarkable circumstance attended his birth; the shape of

head was a subject of puzzle and pleasantry to the neighbours from the earliest period of his life; he enjoyed excellent health during infancy; when about two years old, he lost both parents, but neither of them had a head shaped like this. These particulars, which were communicated to me by his grandmother, are sufficient to establish the congenital nature of the cranial form in the present instance, and to discountenance the hypothesis either of morbid cerebral action or manual compression.

In the course of last winter session I had an opportunity of examining a recent head, which presented a shape exactly similar to that of the head shown in the engraving[a]. The subject was apparently aged about $3\frac{1}{2}$ or 4. Upon making inquiries about the history of the case, I was enabled to ascertain the following particulars, which, however, are quite sufficient for the present purpose. It appears that the patient died of acute phthisis, which had supervened upon a very severe attack of measles. During the entire time that he was under observation, I am informed that he never complained of the head, nor was there any symptom of cerebral irritation, or anything which might have led to the suspicion that brain disease existed. The child had been good-humoured and playful, and by no means deficient in intelligence. Thus far, then, the history of the case does not lend likelihood to the supposition that the cranial enlargement was due to hydrocephalic distention. The absence of serous accumulation within the head admitted, however, of more demonstrable proof, for upon puncturing the cerebral mass, in the direction of the ventricles, with a scalpel introduced into the foramen magnum, no escape of fluid could be observed: further than this, the brain was not explored.

In examining this cranium it was perceived that, in addition to its singularly elongated shape, the vertical aspect presented a remarkable deviation from the usual appearance, inasmuch as the two parietal bones were firmly united along the mesial line, and not by means of denticulations or serratures, or *any sutural indication whatever*,—their line of union, on the contrary, being marked by a smooth osseous ridge or elevation, extending from the middle of the coronal suture to the lambdoidal apex, constituting, in fact, a complete synostosis of the parietal bones.

Not being aware whether a similar appearance in a subject

[a] This cranium was exhibited by the author at a meeting of the Obstetric Society, on the 24th May last. See Reports of the Transactions of that Society, in the last Number of this Journal.

so young had ever been observed, I was anxious to ascertain by diligent search if any cases of the kind had been placed upon record. In Rokitansky's work on Pathological Anatomy, under the head of "Anomalies of Bone," I find the following remarks:—"Congenital synostosis may be the result of an

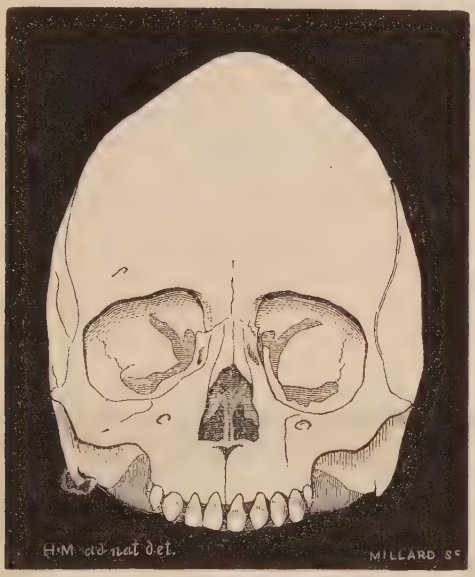

Fig. 2.—Cranium of Daniel B., aged 3½ years.

unnatural fusion of points of ossification belonging to separate bones; it is then almost always manifestly prejudical to the full development of one or both bones, and it accompanies other and more important malformations, such as acephalus, cyclopia, &c.; or it may consist of premature union of bones, which do not naturally unite till various periods after birth; thus the cranial bones are sometimes found united even in the fœtus; allied to this is the case in which certain bones coalesce at some period subsequent to birth, but earlier than that at which their union normally takes place. Thus the cranial bones sometimes unite prematurely with each other, and so do the two halves of the lower jaw, epiphyses with their diaphyses"[a], &c.

In vain have I made a most careful search through a number

[a] Rokitansky's Pathological Anatomy (Sydenham Society edition), vol. iii. p. 139.

of modern works on anatomy, *quos enumerare longum*, yet in none of them was there to be discovered any special notice of the anomaly in question, as associated with the peculiar configuration of head represented in the foregoing engravings, not even in the comprehensive work of Rokitansky from which I have just quoted, for in his section which treats of *deviations* of *cranial form* in particular, there is no description of the present species.

In looking over the crania in the Museum of the Royal College of Surgeons, I found one, and the upper half or calvaria of a second, whose peculiarities are thus briefly stated in the Catalogue:—"26. Cranium much flattened laterally, long from before backwards, and prominent behind." "25. Section of a cranium with very narrow, elongated vertex"[a]. No allusion whatever is made, in this description, to the fact that in neither of these crania is there the slightest trace of a sagittal suture; whether the circumstance of their having attained to full adult growth was considered sufficient to account for its *obliteration*, or whether it escaped notice altogether, I cannot pretend to determine.

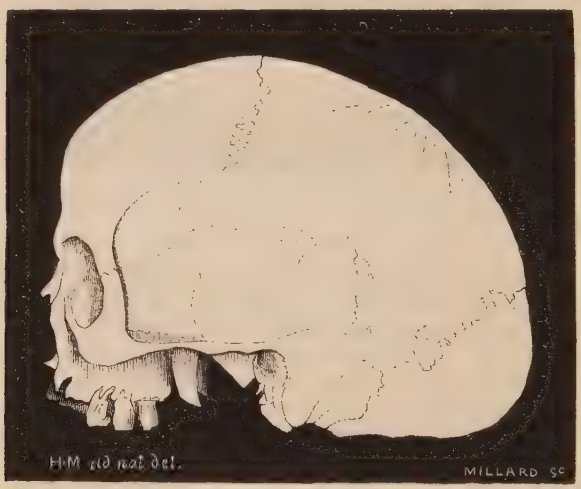

Fig. 3.—Macrocephalic Cranium.—Museum, Royal Coll. Surgeons. No. 26.

An inspection of the accompanying engraving will render a further detail of the peculiarities of this cranium superfluous.

[a] Houston's Catalogue, vol. i. p. 193.

I had prepared a drawing of it, as viewed in front, to show the compressed state of its sides, but in that aspect it is so extremely like the cranium to be next figured, as to render another wood-cut unnecessary.

Another remarkable example of a similar conformation of head has been described and figured by Blumenbach, in his Illustrated Series of Crania of different Nations. The circumstances which attended the addition of this cranium to the collection of the Göttingen Professor are invested with a high degree of interest in connexion with the *locality* whence the skull was procured; notwithstanding the fact that this same skull has been adduced in a recent work[a] as an example of one that had suffered from artificial distortion, and introduced in support of a line of argument altogether different from that for which it is one of the objects of the present paper to contend. I need hardly, therefore, apologize for giving its description entire:—

"III.—Asiatæ Macrocephali.
(Tab. iii.)

"This cranium has been sent to me by the illustrious Asche[b], who writes that it is *probably* that of a Tahtar. It is remarkable for its singular and unusual shape; on the whole, however, it is characterized by *much symmetry*, so that I have no reason to suspect the presence of disease, nor can its shape be attributed to monstrosity. Since nothing certain regarding its immediate origin has as yet been made out, I have nothing to add beyond merely designating its peculiarities.

"The vertex, in particular, is very lofty, compressed, *carinated*. The sagittal suture is *completely obliterated* from both surfaces, the coronal, on the contrary, and the lambdoidal remaining quite perfect. That the sagittal has not disappeared through old age is demonstrated by the integrity of the other sutures, as well as the general appearance of the skull, for the crowns of the molar teeth have their apices perfect and entire, not worn down; while the posterior or dentes sapientiæ have hardly made their appearance, &c. The occipital region is *elongated* and *bent downwards*. On the internal surface of the vertex, in the usual situation of the sagittal suture, the fossa which lodges the longitudinal sinus is deeply grooved"[c].

[a] "Crania Britannica," p. 34, *note*.

[b] Of the "illustrious Asche," Haller thus speaks: "Georg. Thomas L. B. de Asche, carus olim auditor, nunc (1777) exercituum Russicorum medicus primarius."—Alb. Halleri *Bibliath. Anatom.*, tom. ii. p. 463.

[c] J. F. Blumenbach. "Decas i. Collectionis Craniorum diversarum gentium illustrata." Göttingæ, 1789, p. 16, et Tab. iii.

Here, then, we find a cranium possessing characters perfectly similar to those which have been already described, and in speaking of which Blumenbach has taken special care to notice the fact, that the sagittal suture had been completely

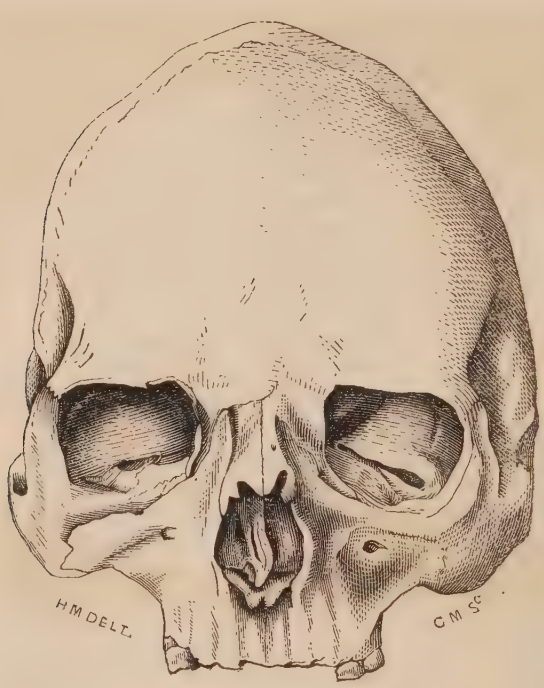

Fig. 4.—Reduced from Blumenbach's Plate (iii.)

effaced (" prorsus deleta"). He appears, however, to have regarded this feature not as necessarily associated with the general configuration, but rather as a curious coincidence, and one not to be easily accounted for. Now if the distinguished physiologist of Göttingen was justified in entertaining the opinion which he has expressed with regard to the skull of an adult eastern macrocephalus, namely, that the obliteration of this suture was not due to the effects of age, seeing that the other sutures were still unclosed (" perfecte superstitibus"), and the wisdom teeth were only just appearing,—surely the presence of a similar condition of the vertical region of a cranium which had not attained to *four years'* growth will, *a fortiori*, afford

grounds for a similar argument. The engraving No. 2 represents very accurately the general configuration of the latter cranium as seen in a front view, and the following cut gives a good idea of the same as seen in profile.

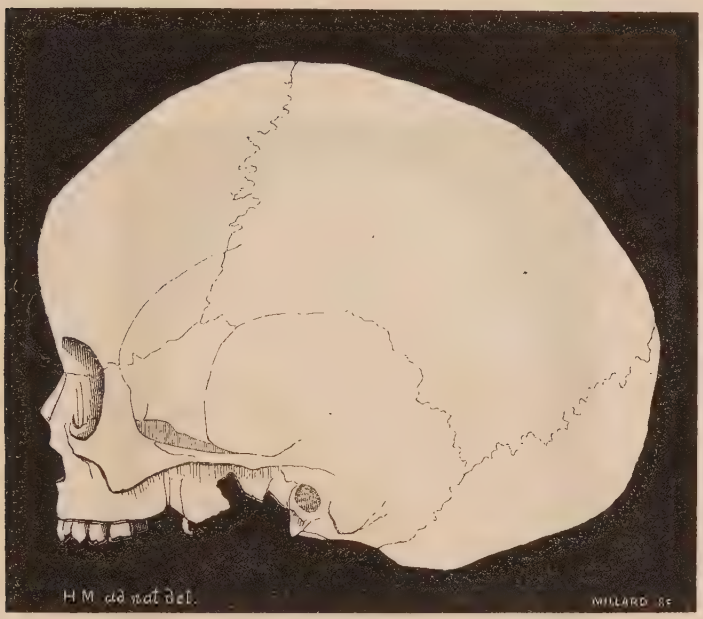

Fig. 5.—Cranium of Daniel B., aged 3½ years

This skull exhibits a remarkable development of the antero-posterior elongation above described, associated also with a total absence of sagittal suture[a]; and, further, upon looking closely to the vertical ridge or "carina," which occupies the place usually assigned to the suture arising from the junction of the two parietals, there is plainly to be observed what I conceive to be the point of ossific origin of *a single vertical bone;* indeed, the stellate or radiate appearance of this part, a condition commonly seen in the vicinity of ossific centres, is

[a] Mr. Queckett has kindly favoured me with a description of a cranium in the Museum of the Royal College of Surgeons in London (No. 5732, New Osteological Catalogue). It is from *Scotland,* and was formerly in Sir Everard Home's collection. This skull is described as being remarkably elongated or boat-shaped, very narrow, with its sides sloping suddenly downward from the sharp ridge of the vertex; sagittal suture "obliterated."

so unequivocally evident, that this fact, together with a total absence of a similar radiation from the regions usually occupied by the parietal protuberances (which in this cranium are flattened in a remarkable degree), would contribute strongly to favour the presumption that the ossification of the dome has proceeded, in the present case, from the vertex alone, and not from the sides. In the subjoined cut this cranium is exhibited as viewed vertically.

Fig. 6.

A consideration of these facts has induced me, in presenting this subject to the notice of anatomists, to express the opinion that the cause of the entire cranial configuration in these and similar cases is intimately connected with, if not mainly dependent upon, the very early ossification of the vertex; for the

beautiful contrivance which Nature has provided in ordinary cases for the expansion of the head in its transverse diameter, by preserving the sagittal suture unossified during the entire period of growth, being withheld from these crania (if the views just stated be correct), and the imperative necessity for the daily augmentation of room for brain-growth in *some* direction being the only condition at all compatible with the maintenance of healthy viability, the progressive enlargement of the cranium is attended with a kind of compensatory action, whereby the frontal bone is thrown gradually forwards, and even a little downwards, so as to overhang the face, the occipital being, at the same time, thrown backwards and downwards; while the ununited condition of the coronal and lambdiform sutures is favourable to the continuance of growth in these two directions, at the same time that the fixed character of the completely ossified ridge along the vertical bone offers an insuperable impediment to a commensurate lateral increase; and in this way we may account for the *apparent* flattening or compression of the lateral regions. And we are encouraged in adopting the view just expressed, in preference to that which would suggest the existence of a premature consolidation of *two parietal* bones at their edges during infancy, by a consideration of the fact that many of the inferior orders of Mammalia have but a single bone between the frontal and occipital, this bone forming the top of the head, and growing from one vertical point of ossific origin.

A sufficient degree of proof having, I conceive, been thus adduced regarding the possibility of a vertical ossification of the human cranium at the time of birth, it yet remains that we should inquire how far this condition is concerned in determining the elongation of the frontal and occipital regions, or whether this cranial elongation should be considered as a necessary and inevitable result of such abnormal ossification.

There appears to be something more than a mere coincidence in the fact that the several crania described in the preceding pages should present such a remarkable degree of similarity in *all* their characters; the *sharp ossified ridge* along the top being associated in each with an excessive degree of height, a very unusual length, and a compressed state of the lateral parts. It is not by any means improbable, however, that as soon as this matter shall have been more fully investigated by craniologists, some skulls will be found in which the osseous fibres, albeit they may appear to diverge from a single central point, will be found to have pursued an inclination less downward from this point, and more directly outward; the

effect of this condition of the parts in the vicinity of the *point de depart* being to render the central region of the calvaria wider and more rounded, like that of ordinary crania, thereby admitting of a breadth of lateral development during the process of brain-growth which will obviate the necessity of an excessive elongation in an antero-posterior direction. In adopting these views, therefore, I should be disposed to attribute the macrocephalic formation, *not altogether* to the original central ossification, but rather to the concurrence of this phenomenon with an approximation of the sides of the os bregmatis *at a small angle*[a].

In Sandifort's "Museum Anatomicum," a cranium in the anatomical collection of Rau is thus described:—"Skull of a man, of which the entire sagittal suture has been obliterated; the outer surface of the bone which occupies this situation forms a broad depression. The occipital bone, at the place of its suture, terminates, not in a point, as usually observed, but in a wide line"[b].

That the head just described is of the species under consideration, there is little room to doubt, for the mere consolidation of a cranial suture being a matter of no very rare occurrence, a case of it is hardly to be considered worthy of being specially recorded; moreover, in defining the condition of the part, it is not said to be consolidated, but obliterated, or completely effaced ("deleta"). The state of the upper part of the occipital suture in this head is worthy of remark, the absence of a lambdiform apex to this bone being a matter of rare occurrence, save in cases where this is compensated for by a triquetral bone. And it is somewhat remarkable that, in the macrocephalic cranium in the College of Surgeons Museum, a representation of which is given in page 358, the lambdoidal is likewise replaced by a wide transverse suture.

It has been already advanced that the elongation of the head, as exhibited in the cases I have detailed, is not of necessity associated with a hydrocephalic diathesis; and it is not improbable that a hasty inspection of the illustrations may dispose some persons to question the validity of the inductions which have led to the expression of this opinion. That a slow

[a] Albinus had a cranium in his museum in which the suture in question was "completely effaced;" and in the collection of Gualtherus van Doeveren there was another, of which it is said:—"Sutura sagittalis *plane deficit, neque ullum ejus vestigium adest;* reliqua omnia ossa latissimis suturis et harmoniis cohærent." This latter was the skull of a *young* subject. The general shape of these heads I have not been able to ascertain.

[b] "Museum Anatomicum," in 4 vols., folio. Vol. i. p. 4. Leyden, 1793. This richly illustrated work abounds in interesting anatomical details.

and gradual accumulation of fluid within the head does give rise to an enlargement hardly distinguishable from that represented in Figs. 1 and 5, will readily be conceded, particularly as these heads are seen there only in the lateral aspect. But even admitting, for argument's sake, that this pathological condition has had its share in producing the cranial elongation, it is difficult to reconcile the phenomena with the general clinical history of chronic hydrocephalus. In this disease we usually observe a strong tendency to a *dehiscence*, or separation of the sutures, the bones experiencing a difficulty, as it were, in preserving a mutual approximation of their edges; and, as a compensation for this, we find nature forming triquetral or supernumerary bones[a] in abundance, so as to fill up the several interspaces, and allow of a free enlargement of the cranium *in all* its diameters. Seeing, then, that the expansion of the head in all directions is a wise and beautiful contrivance of nature, whereby the brain is relieved in some degree from the compressing action of a gradually accumulating fluid, we should expect to find, in a case of the anomalous formation described, where a mechanical obstacle is placed in the way of expansion *in one direction*, that the resulting inconvenience was commensurate with the imperfection of the usual provision; and, therefore, in this case we should have perceived symptoms of brain compression earlier, *cæteris paribus*, than in a case of open and unossified vertex; or these symptoms should have been more *prononcés*, owing to the mechanical difficulty resulting from such a condition of the cranial vertex. From the account, however, which I have received of the case of Daniel B., I am disposed to reject the hypothesis of a hydrocephalic complication having existed; whereas, in the case of John D., the fact of his being now in the enjoyment of full health furnishes abundant grounds for a similar conclusion.

In expressing the above views regarding the improbability of a morbid cerebral condition having had any share in the production of the peculiar shape which I have found to characterize these several crania, I am not disposed to assert that a head so constituted is incompatible with the presence of hydrocephalus. The perusal of the following case of a remarkable cranium, described by Sandifort[b], may help to give an idea of the effects of this complication, in the absence of more direct clinical experience of the subject:—

[a] According to Béclard, these bones are never found at the time of birth, and seldom earlier than the fifth or sixth month. They were first described by Olaus Wormius, of Copenhagen, in 1628.

[b] Vid. "Opus suprà laudatum," tom. i. p. 134.

"Ossa morbosa, No. xv., Cranium of a woman who laboured under hydrocephalus; very thin, in every respect deformed and diseased. Circumference of calvaria about 22 inches; length, measured from forehead to middle of occipital bone, after making the horizontal section, $7\frac{1}{2}$ inches; distance of meatus auditorius of one side to that of opposite, 12 inches; line drawn from root of the nose, along the forehead, vertex, and occiput to foramen magnum, $15\frac{1}{2}$ inches. The head has, therefore, a remarkable length, but not a very considerable height, appearing to be rather compressed at its upper part. If all the bones be examined separately, they are found not much increased in size, but they are very thin and translucent. On comparing the dimensions of these bones with those of a perfectly sound cranium, I found hardly an appreciable difference, save that the frontal bone was a little wider and loftier; the greatest convex width of this part from one temple to the other is 7 inches, while its convex altitude from the nasal bones to the coronal suture is 6 inches. The bones of the vertex are *not separated by a sagittal suture*, a very slight trace (vestigium) only of the latter being seen where it usually joins the coronal; the vertex, therefore, *consists of a single bone*, which, towards the posterior part, projects in a very unequal manner, especially at the left side, and on both sides, but chiefly at the left; also it is very thin, so as not only to transmit the rays of light, but in several places to be hardly thicker than paper. The figure of the head posteriorly in the direction of the lambdoidal suture has a very unusual appearance. The greatest breadth is $5\frac{1}{4}$ inches. The squamous portions of the temporal bones are much excavated internally, and very prominent externally, where they form, as it were, two tuberosities.

"The changes also which the entire brain-case has undergone, have been made evident by a horizontal section."

The description of the appearances presented by the internal surface of this cranium it is unnecessary to quote. The case is illustrated with several fine engravings.

In the instance just quoted it is worthy of remark, that while the vertex is described as consisting of but one bone, a short trace of sagittal suture appears to have existed. This appearance may probably be assumed to argue against my hypothesis regarding the central or vertical origin of a bi-parietal bone; it may be shown, however, that the reasons in favour of such argument are more apparent than real, for this short fissure (as represented in Sandifort's plate), being immediately in front of the assumed central ossific point, from which it tends in a direct line, may have been produced by a partial separa-

tion or divergence of the osseous fibres in passing from this point towards the coronal suture. We can perceive a remarkable analogy to this appearance in the two transverse fissures or pseudo-raphæ, which are found in very many instances to occupy the lateral regions of the occipital bone, and which, if continued across this bone, would divide its lamina into two nearly equal portions. These fissures are very common in infantile, and almost always present in fœtal crania. They appear to arise in this way: the entire upper and back part, or lamina of the occipital bone, as is well known, grows from *one central point of development*, which occupies the situation of the protuberance; from this point the osseous fibres proceed in nearly straight lines in all directions; and in many crania, if examined at an early stage of development, the fibrous fasciculi may be seen to undergo a slight degree of divergence or separation as they approach the lateral margins of the bone. That traces of one or both of these fissures occasioned by this divergence should remain during several years is not very singular, and, therefore, when found in any particular case, they furnish no grounds whatever in favour of the former existence of a suture traversing the occipital bone from one lateral border to the other. I have taken occasion to notice these circumstances in connexion with the subject of peculiarities of cranial development, in consequence of an anomalous condition of the occipital bone having been made the subject of a particular communication to the Edinburgh Philosophical Journal a few years since[a]. The author of this paper[b], in calling attention to the discovery of a supernumerary transverse suture dividing the occipital lamina into two nearly equal portions, in several Peruvian skulls, which "were distinguished by a flattened occiput," has endeavoured to establish upon this discovery a cranial feature of ethnognomic importance. In speaking of the infantile heads of some of the primitive inhabitants of western South America, he says:—"A bone is found between the two parietal bones, below the lambdoidal suture, separating the latter from the inferior margin of the squamous part of the occiput. This bone is of a triangular shape, its upper angle lies between the ossa parietalia, and its horizontal diameter is twice that of its vertical. It coalesces at very different periods with the occipital bone, sometimes in the first month after birth, and sometimes not until after six or seven years. In *one* skull, belonging to a child about seven years old, with

[a] Edinburgh New Philosophical Journal, p. 252. 1844.
[b] Dr. J. J. de Tschudi.

a very flat occiput, this bone is separated by the most perfect suture from the squamous part of the occiput, and is 4 inches broad and 2 inches high. In a more advanced age it *probably integrates* with the rest of the skull. I have, however perceived it in all the skulls *of this class* which I have examined. On a close scrutiny we generally find *traces* of it in the linea semicircularis superior. This bone, which, in remembrance of the nation in which it is found, I call *os Incæ*, corresponds entirely with the interparietal of the Rodentia and Marsupialia, &c. . . . In the *ordinary embryos* of man there are barely some traces in the first months, which, however, soon disappear; I think it, therefore, very curious that we should find so *retarded a formation* in a whole race of men who have exhibited a very inferior degree of the intellectual faculties."

That the existence of this supernumerary bone is peculiar to skulls which are posteriorly flattened, or even to the skulls of any particular race, appears to have been rather hastily assumed; nor does the inference that the transverse suture becomes consolidated in early life, so as to be but rarely found in adult crania, rest, in my opinion, upon a legitimate or valid foundation, as may appear from what has been already advanced regarding the nature of the pseudo-raphæ or lateral fissures in the occipital bones of many infantile crania. The accuracy of Dr. Tschudi's position, that during fœtal life this supernumerary bone may be traced as the ordinary normal condition, I am strongly disposed to question, notwithstanding the doctrine has been reproduced in a very recent craniographical work of some pretension[a].

It appears not improbable that the origin of this anatomical notion is to be traced to the observations of Béclard and Meckel, the former of whom describes four distinct ossific points in the squamous portion of the occipital bone, while the latter admits so many as eight.

[a] "Crania Britannica," by J. B. Davis, F. S. A., and J. Thurnam, M. D., F. S. A. London, 1856. In this work, now in course of publication, the discovery of an inter-parietal bone (the *super-occipital* of Owen) is ascribed to Dr. Bellamy, who found it in the younger crania of Peruvian mummies: the earliest notice, however, of this subdivision of the occipital bone is to be found, I believe, in the works of Gerard Blasius. This writer has described the "sutura proræ" as constituting the inferior transverse boundary of a distinct triangular bone, which is, in fact, the true *epactal* bone, and not to be confounded with ossa Wormiana (vide "Anatome Contracta," p. 58. Amsterdam, 1666). The structure in question may be seen in the delineation of a *Hindû* cranium in Prichard's Natural History of Man, p. 171. It also exists in a skull from a *Roman* burial-place in Suffolk, preserved in the Anatomical Museum of Cambridge; again, in a *Bengalee* skull, presented by Dr. Spry, of Bath, to Mr. Davis; and most distinctly in that of a chief of the *Cayugas*, who lived to nearly a hundred years. Vid. "Crania Britannica," p. 29.

In returning from this digression to the subject of a vertical cranial ossification, which remarkable condition I have found to be associated with that peculiar configuration which I consider to be the true macrocephalus, I would again refer to the Hippocratic treatise[a], with a view of ascertaining whether the principal statements therein contained may not be perfectly reconcileable with the views advanced in the preceding pages. "They think those to be the *most* noble," Hippocrates says, "who have the longest heads." We may observe here that the word in the original which is translated *noble* is γενναῖος, high-spirited, ingenuous; and not ευγενὴς, which would more decidedly imply a distinction of birth, an hereditary pre eminence attaching to particular families. It appears, therefore, that we should rather accept the term in the sense of a moral and intellectual superiority; in fact, an aristocratic condition arising, perhaps, from causes referable to brain rather than to blood. Now we can hardly suppose that this superiority of character could have been communicated by constraining the heads of infants to grow according to a prescribed form by the employment of mechanical force, however ingeniously applied; I am, therefore, disposed to question the accuracy of the statement which ascribes the *fons et origo* of the macrocephalous formation to a custom or usage, for it could not possibly have been foreseen that nobility of mind should become the necessary or inevitable accompaniment of the heads so treated in infancy. But, what appears at the first view to be an authentic historical account of the artificial origin of a peculiar cranial configuration, which the author acknowledges to have become obsolete either during or antecedent to his own time, may have been, after all, but a mere conjecture arising from the traditional prevalence of the custom during a certain period, and as affording him a convenient opportunity of explaining the phenomena in accordance with the views contained in his favourite generation theory; but the syllogistic form into which he has thrown the argument, although it leads apparently to a valid conclusion, has failed to convince me that the case is logically proven. While, however, in considering his explanation as unsatisfactory, I am inclined to dispute the doctrine of an hereditary transmission, I do so only as regards its application to heads *artificially compressed* into an unusual shape, and not to crania possessing the *true* macrocephalic form.

In proceeding, therefore, to consider the matter in this light, I may now fairly inquire—Have we not strong anatomi-

[a] Loco suprà citato.

cal grounds for supposing that the macrocephalic formation was *originally* dependent on *natural causes alone?* We have seen it in later times as a natural formation in several well-marked instances, to which the hypothesis of an artificial interference is altogether inapplicable. In all these cases we find a high degree of frontal development, and a facial angle of more than ordinary size, and this circumstance is of importance when taken in connexion with the mental qualities attributed to the long-heads by the Father of Physic. I conceive, then, that a recognition of the principle that a superior degree of phrenological endowment appeared to characterize the possessors of heads *naturally* elongated (γενναιοτατους ἡγέονται, κ. τ. λ.) may have operated as a powerful inducement to the "round-heads" of the period, the comparatively brachycephalic individuals of the same race, to endeavour by mechanical means to communicate to their infants an *appearance* resembling the *true* long heads of their more gifted neighbours, in order that when they should have grown up they might receive their share of that deferential respect which we may suppose the more prepossessing physiognomy of the real macrocephali to have elicited. The origin of the "usage," then, may in this way be more plausibly accounted for, while an equally satisfactory explanation of its discontinuance is afforded by the supposed disappointment which this people may have experienced, arising from their ultimate failure in securing the desirable result suggested.

I shall go so far as to suppose that during a certain period a peculiarly elongated configuration of head may have been prevalent *as a natural production*, and *so general* in one particular district, as to have suggested the invention and establishment of a certain mechanical usage, having in view the special object of which I have already spoken.

It may appear somewhat singular that most of the ancient authors, who have left some records of the various dwellers along the southern and eastern borders of the Euxine, should have omitted to put us in possession of any information whatever concerning a custom, of whose reality we can hardly suspect them to have been ignorant, if we suppose the practice to have prevailed to an extent sufficient to constitute a characteristic trait of one particular tribe or section of those nations. I am inclined, however, to look upon this silence on the subject as being rather favourable than otherwise to my view of the case, namely, that the macrocephalic heads constituted a natural variety, wholly independent of orthopedic interference during infancy, and as distinct in this respect, therefore, from the usual type of cranial formation found among the surround-

ing nations, as albinism is from the dark hue of skin which characterizes those nations to which this variety was for a long time considered peculiar. I do not by any means wish to deny that the habit of *distorting* the head may have existed in remote times among the Scythian races, nevertheless, I cannot avoid looking upon the evidence which the researches of late years have brought to light, as furnishing but feeble proof that the compressed and distorted heads found in ancient tumuli, in several parts of the south-east of Europe, are of the true shape to which the extinct macrocephali owe their designation.

In the case of albinism, we have seen that individuals whose integuments were so constituted by nature as to be deficient in the usual substratum of pigment membrane were formerly designated 'white negroes,' from the fact of their having been found in the midst of nations with dark skin, but that the more extended observations of the naturalists and physiologists of later times have demonstrated the existence of this condition of the skin as an occasional or incidental natural variety, which is not confined to any race or any clime,—so that of these it may now be almost said:—

"Quocunque in populo videas, quocunque sub axe."

But the absence of an interparietal suture constitutes as remarkable a deviation from the normal type of form as does the deficiency of pigment from that of colour; arguing, then, upon this physiological parallel, I consider that the evidence derived from an anatomical examination of several crania which we cannot fail to recognise as being *naturally and of necessity* macrocephalic, is of such a nature as should induce us to pause for a moment and ask—If nature has, within our own times, and in our own country, produced such heads, be the number ever so limited, may she not have done the same in former times and in another country?—and we should not lose sight of the remarkable fact, that the very first macrocephalic cranium that was sent from the East by De Asche appears to have presented the strongest evidence in favour of its form having resulted from a necessity anatomically impressed upon it at the earliest period of its growth. And, as regards the hodiernal reproduction of occasional or isolated instances of a condition of being, whose numerical prevalence during an ancient period, within a comparatively limited area, conferred upon the inhabitants of that district a designation which the ancient historians and geographers appear to have considered so adequate and expressive as to have precluded the necessity of an explanation of the term—may not this be, after all, but a particular

development of that more general principle embodied in the well-known query of the inspired preacher—"Is there anything whereof it may be said, See, this is new? It hath been already of old time, which was before us"[a]?

That some difficulty has existed in ascertaining the precise locality formerly occupied by this extinct race is evident from the discrepancies to be found in ethnological works with regard to their exact position. It may be interesting, therefore, to collect together all that we can find recorded concerning them, in order that, upon collating the several accounts, some approximation at least may be arrived at.

Stephanus[b] localizes them "juxta Colchos," but gives no description of their habits or character.

Pomponius Mela[c] is a little more full in his details; he describes them, in conjunction with the Bechiri and Buzeri, as being not quite so wild ("minus feri") as the adjoining tribes, but still as a rather unpolished race ("inconditis moribus"). Of their cities, which are few, he mentions Trapezûs and Cerasus as the most remarkable. The locality of Colchi is thus indicated:—"Where terminates a line drawn from Bosporus [*alias* Panticapæum, *hodie* Kertch], and which, making thence a curvature in the creek of the *opposite* shore, forms the very sharp angle of Pontus."

According to Scylax[d]—"Post Bechiras gens est Macrocephalorum, et Psorôn portus, Trapezûs [*hodie* Trebizond] urbs Græca."

Pliny[e] also places them in the vicinity of the Bechiri. His reserve on the subject of the artificial moulding of the head is the more unaccountable, as he has not omitted to notice other customs characteristic of some of the nations in their vicinity; for example, the Mossyni (or Mossynœci) in the very same chapter are described as "notis signantes corpora."

By Eustathius[f], the Macrocephali appear to have been confounded with the *Macrones*, or Sanni.

Palæphatus[g] states that they dwelt "in Libya supra Colchos."

And finally, that the evidence be not all on the one side, we should adduce the statement of Philostratus[h], who, in speak-

[a] Ecclesiastes, i. 10.
[b] "De Urbibus."
[c] Lib. i. cap. 19.
[d] "Geographia Antiqua."
[e] "Hist. Nat." lib. vi. cap. 4.
[f] "Ad Periegetam," v. 766.
[g] Libro vii. rerum Trojanarum, according to Suidas and Harpocration, in Μακροκεφαλοι. We have the authority of Harpocr. also for stating that Hesiod (3°. γυναικων καταλογω) makes mention of them.
[h] "De Vitâ Apollonii Tyanensis," lib. iii. cap. 47.

ing of some of the wild races beyond the Ganges, says:—"Scipiadas, et *Macrocephalos* autem, et quæ de illis Scylacis historiæ canunt, nec apud Indos, *nec alibi terrarum usquam* obviam esse."

Amongst all the writers, then, who have alluded to the Macrocephali in terms more or less definite, we find Hippocrates to have been the only one who has suggested a theory to account for their peculiarity of cranial form. That Strabo, in his great geographical work, should have omitted to leave any record of this strange people, may perhaps be accounted for on the supposition that, long before the time in which he lived, this special conformation of head had ceased to prevail as an endemic of the Libyan soil, and that in consequence the Macrocephali no longer existed as a *national* variety of the human race,—it is, however, not improbable that, either from intermixture with, or dispersion amongst other tribes, they continued to appear only in the form of more rare and isolated phenomena, spread over a larger space of country, and in this way contributed to the revival, on the part of the tribes amongst which they appeared, of the old custom of *affecting* (if not of *effecting*), through some artificial contrivance, a factitious semblance of the true long-heads.

However groundless this hypothesis may at first view appear, it receives some countenance from the fact that Strabo, who lived several centuries later than Hippocrates, and who made extensive travels throughout the countries of the East in search of accurate information regarding the social and political condition of their inhabitants, has, in his account of the people that were spread through the district lying immediately southward of the Caspian Sea, made allusion to a tradition respecting some of the *Sigynni*, and ascribing to them an affectation of appearing to have excessively long heads:—"The *Sigynni*," he says, "in other respects adopt the Persian fashions: their horses, which are small and shaggy, are not adapted for the saddle, and are therefore yoked to chariots, which are driven by women, educated for this purpose from an early age, &c. *It is said that some make it their special pursuit to appear to have very long heads, and that they may seem to have bent (or beetling) foreheads, so that they (the foreheads) overhang their chins*[a]. It is usual among the *Tapyræi* for the men to go about in black, *with their hair in profusion* (*μελανειμονεῖν καὶ μακροκομεῖν*); the women in white, with their hair short

[a] "Τινας δ' επιτηδεύειν φασὶν ὅπως ὡς μακροκεφαλωτατοι φανοῦνται, καὶ προπεπτωκοτες τοις μετωποῖς, ὥσθ' ὑπερκυπτειν των γενείων."—Strabo, xi. 16.

(λευκειμονειν καὶ βρακυκομειν): these dwell between the Derbicæ and the Hyrcani," &c.

From the various ancient records which have come down to us, we can collect that the wide tract of country extending from the Carpathian Mountains on the west, to the lofty chain dividing Siberia from Central Asia on the east, was inhabited by tribes of Scythians, amongst whom a considerable interchange of mercantile and other transactions was maintained, and that in time the whole country between Media and the Danube became occupied by a series of cognate tribes. The earliest traditions represent the Scythians as in continual contact with the Medes; and we receive many significant hints that the Scythians and Medes were ultimately connected with one another as kindred races[a].

Herodotus speaks thus concerning the *Sigynnæ*, who lived *westward* of the *Euxine*:—"I have been able to hear of no men dwelling beyond the Ister (Danube), excepting those who bear the name of Sigynnæ, and use the Medic costume. I am informed that the horses of these people are shaggy all over the body, the length of the hair being about five fingers; they are, however, small and snubby (σιμὸι) and unable to bear a rider, for which reason the natives use chariots. It is said that the boundaries of these people stretch almost as far as the *Eneti*, near the Adriatic, and they pretend that they are a colony of the Medes. How these can have been a colony of the Medes, I cannot myself comprehend; still, in the long lapse of time, there is nothing that may not take place"[b].

I have perused very carefully that portion of Strabo's great work from whence the quotation in the preceding page has been made, as this geographical writer has been specially referred to by the author of the chapter on extrinsic distortions of the head in "Crania Britannica." In page 34 of this work it is stated that—"Strabo (xi. 16) mentions two other Asiatic nations who *adopted the same practice*"[c]. Now, the only two nations, with regard to whose heads I have been able to find any insinuations contained in the chapter thus referred to, are the *Sigynni* and the *Tapyræi*.

Concerning the latter people, it is clear that, even supposing that they did evince a desire to simulate an appearance of some peculiar cranial condition, we can only assume that they

[a] Vid. Donaldson's Varronianus.

[b] Herod., lib. v. cap. 9.

[c] It may be remarked that Mela and Pliny are also referred to (eâdem pagina) as having made allusion to this subject (cranial distortion). This statement, however, a diligent search through the works thus named has not enabled me to verify.

attempted to carry the deception into effect by having recourse to an ingenious arrangement of the hair, whereby they may have endeavoured artfully to eke out and to conceal their frontal deficiency, for the term μακροκομεῖν cannot be made to imply an interference with the real form of the cranium. Nor am I satisfied that, according to the account which the same writer has given us concerning the Sigynni, we have sufficient grounds for supposing that this people really had recourse to the practice of skull-squeezing. The passage in the original is obscure enough, I admit, especially as regards the employment of the term ὡς φανοῦνται; the best grammarians, however, consider the sense of the future indicative, when used in this way, to be nearly allied to the conjunctive, and only to differ therefrom in that it definitely expresses the *possible realization* of the proposed end. Again, regarding the term ὥσθ' ὑπερκύπτειν, it is not very clear whether an *object* or a *consequence* is indicated.

There is one point, however, which does not admit of doubt, and that is, that the *species* of cranial elongation which this people may have desired to assume, however opinions may differ regarding the *modus in quo*, was not characterized by a forehead of that depressed and receding form exhibited in the heads of some tribes of the new world, and in the Grafeneck[a] and the Atzgersdorf crania; and when, in connexion with the geographical position of the ancient Macrocephali, I reflect on the probable facilities which were afforded to the nomadic tribes ranging eastward and westward of the Libyan district, of observing their cranial peculiarity, as well as of affecting an imitation of their customs and habits, I cannot avoid attaching some importance to the fact that the cranial form which I have suggested, as having conferred upon that people their peculiar designation, constitutes the only species of naturally elongated heads whose foreheads may be truly said to overhang their chins.

[a] An engraving from a plaster cast of this remarkable skull may be seen in Wilde's Austria, p. 49. For a full account of the circumstances connected with its discovery, and a dissertation regarding its probable origin, see Müller's "Archiv für Anatomie, Physiologie, u. s. w.," s. 277. 1845.

CROSS HOSPITAL

Art. XVIII.—*On Inflammation and Obstruction of the Branches of the Pulmonary Artery.* By George H. Kidd, M.D., Assistant Physician to the Coombe Lying-in Hospital, Lecturer on Anatomy and Physiology in the Dublin School of Medicine.

Diseases of the pulmonary artery have received but little attention. Obstruction to the circulation from plugging of its branches seems not to have been specially noticed, until M. Baron[a] and Mr. Paget[b] drew attention to it. Dr. Dubini next noticed it, and referred to Gamberini as having also investigated the subject; and Dr. Chevers, in a series of papers in the Medical Gazette, has collected the principal cases previously published, and added some new from his own experience. Since then other cases have appeared in the medical journals, many of which Dr. Simpson has republished in the new essay contributed to the second volume of his Obstetric Memoirs. Writers of systematic treatises have not at all, or have only incidentally noticed this form of disease; indeed, Cruveilhier, Hasse, and Handfield Jones are the only authors in whose works I have met with even incidental allusions to it; Dr. Graves[c] and Dr. Bright[d] mention the fact of a fibrinous clot being found obstructing the pulmonary artery, but do not dwell on it.

The following case may, therefore, be thought worthy of being placed on record, especially as it belongs to a class which, in the words of Dr. Simpson, "will be found to be much more frequent than is supposed:—1. When we come to know better and really search for their effects and symptoms in the living body; and, 2. When we do, what has hitherto been almost entirely neglected to be done, namely, look properly for their existence in our dissections of the dead body." Moreover, it may assist to clear some obscure points in the pathology of these, and, perhaps, of some other diseases of the vascular system. For, strange to say, morbid appearances that elsewhere are attributed to inflammation, are in the pulmonary artery referred to other causes. One of the latest writers on general pathology, Handfield Jones, denies that symptoms of that affection have ever yet been met with in this vessel, while another observer, Dubini, goes so far as not only to reject inflammation

[a] Archives Générales de Médecine, 1838.
[b] Medico-Chirurgical Transactions, vols. xxvii. and xxviii.
[c] Clinical Medicine, edited by Neligan, vol. ii. p. 180.
[d] Reports of Medical Cases, vol. i. p. 19.

as the process by which obstructions in the artery are formed, but to say, "there are difficulties in the way which destroy every hope of success in the explanation of the genesis of the clots."

Though dissection has, in numerous instances, proved that obstruction of the pulmonary artery was the cause of death, in no one case has the true nature of the disease been recognised during life. This is another reason for inviting attention to it, more especially as the appearances found in some of the cases, show that it was not the first attack that proved fatal, traces of previous attacks being evident, though considerable progress had been made towards their obliteration. This ignorance of the symptoms is the more to be regretted, as there is reason to believe that treatment might at least afford time for the establishment of the reparative processes. The symptoms observed in this case, compared with those recorded in some others, do not, it is true, afford the means of removing completely this ignorance, but a knowledge of them may serve to arrest attention in future, and lead to the observance of others of more diagnostic value.

Catherine Cummins[a], aged 26, was admitted into the Coombe Hospital April 26, 1856, in labour of her first child. The first stage of labour occupied five hours and twenty minutes; the second, two hours and forty minutes; both were natural, and the child was born alive; the third stage occupied one hour and a half; when, some hemorrhage having occurred, the placenta was removed by slight pressure, and a binder and pads applied. There was slight hemorrhage subsequently, causing some prostration, but no approach to fainting.

From this period till 10th May she seemed to be slowly progressing to convalescence. The lochial discharge was natural; she had a due supply of milk for her child; her appetite was tolerably good, and she was able to take nutritious diet; yet her pulse kept quick and small. There was much debility, and the expression of her countenance was unhealthy.

May 10th. She has much irritability of stomach and loss of appetite. Is unable to nurse her child. Removed to another ward.

12th. Stomach better; no vomiting; complains of a stitch under the right breast, and cough; respiration short and quick; pulse quick and small; skin soft; bowels confined. For some days the countenance has been assuming a still more unhealthy aspect; the skin looks dirty and dry; the features are pinched

[a] The details of treatment are omitted.

and sunken; the cheeks have each an orange-coloured patch, with dusky red vessels running through it, altogether presenting the appearance of a patient labouring under phlebitis; but repeated and close examination could not detect any symptoms beyond those already mentioned. There had been no rigors; no pain or swelling of the abdomen; no enlargement of the uterus; and the secretions, up to the 10th of May, had been healthy.

It was now discovered that, while in the labour ward, she had been in the habit of rising in the morning when the nurse and other patients were asleep, and washing her child's clothes in the closet.

13th. The bowels have been freely acted on when the pain disappeared, and she would not allow the sinapism, which had been ordered, to be applied; cough better.

15th. Pain returned; relieved by a sinapism.

16th. Has had a sudden attack of great debility; small, weak pulse; no pain.

17th. During the night had a return of the debility, with difficulty of breathing; cold perspiration, and small quick pulse. This morning reaction seems established, but the cough has returned, and causes much distress.

On examining the chest it was found dull on percussion posteriorly, below the right scapula, where a fine crepitus was heard; pulse quick and small, 112; skin dry, but cool; countenance still more unhealthy and phlebitic-looking; expectoration, greenish-white tenacious mucus.

20th. Lungs clearing from above downwards; much less cough. Asks for broth.

22nd. No improvement in the state of the lung since the 20th; pulse still small, weak, and quick.

23rd. The expectoration, which had nearly ceased, is to-day in great quantity, and of a reddish-brown colour. She says she is better, and asks for solid food.

24th. No expectoration; cough easy; feels so much better that she is anxious to go home. A miliary eruption observed on the chest.

25th. Took a hearty breakfast this morning; had beef-tea in the middle of the day, and seemed in unusually good spirits. At 3 o'clock she got out of bed for a few minutes, when her breathing became so difficult, and accompanied by so much prostration, that she required to be assisted back.

I saw her at 6 o'clock, she then lay on her back, with her head and shoulders raised; her face was pale, but dusky; her respiration short and quick; the surface cold; the pulse quick

and weak; her intellect clear. She said she was then much better, and her breathing much easier, but she was greatly afraid of a return of the attack; she had two involuntary alvine dejections. I had warm applications made to the surface; sinapisms applied to the region of the heart; wine, ether, and ammonia administered. She seemed to improve slightly for a short time; but the difficulty of breathing increased, and the circulation gradually failed. At 8 o'clock the pulse had ceased at the wrist; the surface was cold and clammy; the respiration panting, the heart's action regular, but feeble. Intellect clear.

At midnight she died, having preserved her intellect till nearly the last.

26th. *Post-mortem Examination*, eighteen hours after death. —Body still warm; rigor mortis set in; hands half closed, and opened with difficulty. The examination was obtained with difficulty, and was necessarily much hurried. The viscera of the abdomen were remarkably pale and anemic; the uterus was small and pale, about the natural size of the unimpregnated uterus; the broad ligaments thin and transparent. There was an old band of adhesion between the rectum and posterior wall of the uterus, on the left side; it had all the appearance of serous membrane, and might almost have been taken for one of the semilunar folds that pass from the rectum to the uterus; a similar band was attached to the ascending colon, passing from the abdominal wall to it, but not connected with the uterus, nor with that just described,—it, too, had evidently existed a long time. The stomach was distended with air and fluid; the liver and spleen were of a natural size and healthy appearance; they were not cut into.

The kidneys had a quantity of white deposit in both the cortical and tubular portions, but were of the natural size, or nearly so.

In the thorax there was a recent adhesion between the right lung and the anterior wall, corresponding to the seat of the stitch; the cavity of the pleura, posteriorly, was obliterated by recent adhesions, and the lobes of the lung were adherent to one another. On the left side there were no adhesions; there was no fluid in either side; the pericardium contained some clear-coloured serum; the heart was large and full.

As the relatives were waiting to remove the body, ligatures were applied to the large vessels, and the heart and lungs removed for further examination. The parts removed were examined next day. The right lung was solid and friable at its posterior inferior lobe, in a thin layer corresponding to the

pleuritic adhesion; it contained an abscess lined with a cyst, and containing fetid, purulent fluid, resembling that expectorated on the 23rd; the cavity had bands crossing it irregularly; there were a few tubercles in the apices of both lungs; one of these, in the right lung, was soft and yellow, but not fluid; the question might arise as to whether it was really a tubercle or a purulent deposit; it seemed to me to be a tubercle.

The cavities at the right side of the heart were full of a soft, yellow, fibrinous clot; it nearly quite filled the two cavities, passing between the carneæ columnæ and chordæ tendineæ and attached to them, but without any organic adhesion. It extended into the venæ cavæ and venæ innominatæ as far as they had been removed, and into the pulmonary artery as far as the valves, but did not pass through them, nor fill this part of the heart. On opening the trunk of this vessel, another similar clot was seen at the angle of bifurcation, with a rounded extremity towards the heart, and extending into both branches as far as their primary divisions. It passed a short way into the branches going to the superior lobes of the lungs, and then terminated. Into those going to the inferior lobes it extended but a short distance, when it became attached to another clot, of a very different appearance. It nowhere completely filled the vessels, but lay loose in them, and had all the appearance of having been formed during the long agony that occurred before death. On microscopic examination it presented a fibrous arrangement, with vast quantities of white corpuscles held between the interlacing fibres. Its general appearance was yellow, translucent, and soft.

The left auricle contained a similar clot, but very much smaller than that in the right; it crossed the cavity, one extremity of it being in the appendix, and the other continuous, with similar clots extending a short distance into the pulmonary veins of both sides. In the left ventricle there was a narrow fibrinous clot attached to one of the mitral valves, from which it passed into the aorta extending ten or twelve inches, long, narrow, and unattached.

The heart was distended, but not hypertrophied; the valves healthy.

The branches of the pulmonary artery to the inferior lobes of the left lung were now laid open; they were found, beyond the origin of those to the superior lobes, to be *filled* with a mass of lymph, evidently of old formation; it had a mottled appearance, was of a general brownish-yellow or fawn colour, with patches of a whiter substance; it was much firmer than the clots already described; it had a rounded extremity at its car-

diac aspect, to which the fibrinous clot was softly adherent. It completely filled the vessels, and was adherent to their coats, portions remaining attached to the internal layer on tearing them off, giving them a rough appearance. The vessels were full of this deposit as far as they could be followed with the knife;—from this point it continued a short distance, but could be pulled out, when it was found to end in a fine point of a red colour and soft appearance, like an ordinary blood clot.

In one of the larger branches the deposit had commenced to soften in the centre, where there was a puriform fluid, presenting in the microscope granular nucleated corpuscles. This portion was about one and a half inches long; the remainder was solid.

The vessels of the right lung were dissected out before laying them open. Those passing to the middle and inferior lobes were embedded in condensed indurated parenchyma, very different from the structure surrounding the vessels of the superior lobe. This condensed tissue was from one-eighth to one-fourth of an inch in thickness. One of the largest trunks presented an enlargement or dilatation. The vessels were now opened, and found to be filled with coagulated lymph, as were those on the left side. All the branches supplying the lower and middle lobes were completely obstructed. The deposit was still more firmly adherent to the coats of the vessels than on the left side. At the seat of the dilatation the deposit was hollow, and contained the same softened fibrine as on the left side. The lung all crepitated on pressure, and was permeable to air, except at the seat of the solidification already described; here it was dark, solid, and friable, breaking down easily. This condition existed only about an inch in depth from the surface of the pleura. The abscess had a distinct lining membrane; one of the branches of the artery was traced into its wall. The left lung all crepitated on pressure, and was all permeable to air;—at its apex it had the puckered, cicatrized appearance by many considered indicative of an obliterated vomica, but by Walshe shown to be the result of a local pleuritis[a].

The structure of the mass obstructing the pulmonary artery shows that it had formed long before the death of the patient. Many of the recorded cases exhibit the same fact, and prove that life can exist with the greater portion of the pulmonary circulation obstructed; in some instances without even any apparent inconvenience, till sudden death occurs, when dissection manifests the long existence of the obstruction. Mr. Paget

[a] "Adventitious Products," Cyclopædia of Anatomy and Physiology.

has fully explained how life is prolonged under such circumstances. As a full understanding of the question is necessary to comprehend the nature of cases like that now recorded, I shall make a free use of his observations. "It appears," he says, speaking of sudden death from this cause, "that the obstruction of a large and quickly increasing portion of the pulmonary circulation, if it be not complicated by other diseases, is usually unattended by disturbance of the respiratory or any other important function." This shows that there is no great congestion of the permeable vessels of the lung, nor of the systemic vessels either.

"Now, for the avoidance of either general or pulmonary congestion, it is essential that equal quantities of blood shall, in a given time, pass through the systemic and pulmonary circulations respectively. . . . . In the case of an obstruction of the pulmonary artery—provided it is of small extent—the right ventricle will increase the velocity of the blood, which it propels through the remaining open arteries, and it may so do this, and at the same time so dilate these vessels, that the quantity passing through the lungs in a given time shall not be diminished, in which case no change will be needed in the systemic circulation." But if the obstruction be more considerable, "then the balance of the two circulations can be maintained, and congestion can be avoided, only by the movement of the blood through the systemic vessels being retarded, till the quantity traversing them in a given time is not greater than the reduced quantity which now, in the same time, traverses the lungs." "At least this is the only way in which the balance of the circulations can be preserved, if, as in the recorded cases, neither the whole quantity of circulating blood, nor the quantity, whether moving or at rest, in the lungs, is materially reduced." The retardation of the systemic circulation is produced by the left ventricle, which receives under these circumstances but a small quantity of blood, discharging but a small quantity at each contraction; consequently, other circumstances being the same, there must be a diminished velocity of the blood through the systemic vessels. The systemic circulation is then less rapid—the pulmonary more rapid. In such a state the patient lives some time without discomfort.

Thus a compensatory condition is established, consisting in:—1. Increased action of the permeable portion of the lung, as much blood passes through this permeable part of the lung, in a given time, as should pass through the whole lung, its velocity, of course, being increased. 2. The obstruction being greater, only so much of the blood as can pass through the

lungs is circulated; this diminished stream passes through the systemic arteries more slowly, and the systemic veins act as a reservoir for the now superfluous blood.

Mr. Paget proceeds to consider the mode of death, the immediate cause of which he believes to be, not at the lungs, but at the heart and brain. The pulmonary obstruction increasing, the quantity of blood sent to the heart and nervous centres diminishes, till at length it nearly ceases to flow, and the patient dies suddenly or slowly. The form of death is altogether peculiar. It is in some respects like asphyxia; in both there is an arrest of blood at the lungs, but in this disease the blood which does pass through them is aërated; in asphyxia it is not; and in it, therefore, there are all the signs of poisoning by carbonic acid and the want of breathing. Again, this mode of death resembles, in some respects, death from anemia; in both, the organs die for want of fresh supplies of blood, but in anemia there is no blood for them; in these cases there is blood, even in the organs, but it is not constantly renewed.

Death may be gradual, the systemic circulation being gradually arrested; or sudden, as after unusual muscular exertion, the venous circulation being hurried, and the systemic vessels emptied more rapidly than they can be filled by the diminished current returning from the lungs.

If now, the case of Cummins be examined, the train of circumstances will be easily understood. She had diseased kidneys, and consequent liability to inflammation of the serous membranes, the effects of which were indicated by the bands of false membrane in the peritoneum, and the puckered appearances on the lung. The puerperal state was superadded, and consequent fibrinous crasis, and other changes in the composition of the blood—a new incentive to inflammation. At the period when the increase of fibrine was greatest, some days after delivery, she exposed herself to cold, and made improper exertion in washing her child's clothes. A new inflammation was set up; it attacked the membrane lining the pulmonary artery; this was indicated by debility, a quick, small pulse, quick respiration, the phlebitic countenance, vomiting, cessation of the secretion of milk, and a miliary eruption. Notwithstanding these symptoms, none of the organs usually affected with phlebitis manifested its presence. The inflammation now extended to the capillaries, and pleuro-pneumonia in one lung was set up. At this period, May 16, two attacks of alarming debility occurred, causing the nurse to summon the house surgeon. The exact nature of these is not evident; they may have been imperfect rigors, indicating the commence-

ment of the pneumonia, or the result of some temporary or sudden increase of the obstruction. Under treatment, the pneumonia was subsiding, and an abscess, which had formed, discharged itself; still the pulse remained quick and small, the breathing quick, and there was great debility. She now got out of bed and made some exertion; the circulation was hurried, the systemic vessels were emptied more quickly than they could be filled; the heart's action began to fail; the slowly moving blood deposited fibrine behind the obstruction in the trunk of the pulmonary artery, and in the right side of the heart and the veins leading to it, which were nearly filled. The stream slowly trickling through the left side formed a small coagulum there also; the heart's action failed, and death ensued.

That the obstruction was produced by inflammation of the coats of the artery, can scarcely be questioned. The appearance of the lymph, its adhesion to the vessels, and the red and indurated tissue in which these lay, all indicate its presence. It has already been mentioned that some authors deny the agency of inflammation in producing obstructions in the pulmonary arteries; others, as Hasse and Cruveilhier, regard them as the result of the mingling with the blood of pus produced by phlebitis elsewhere, which, carried by the course of the circulation into the pulmonary arteries, obstructs the capillaries by the large size of the pus corpuscles; or, Hasse suggests, exercising a coagulating effect on the blood, forms a mass, which, carried forward in the course of the circulation, is stopped in, and obstructs the larger trunks. Dr. Simpson, in addition to pus, suggests two other substances as likely to operate in the same way, viz., the coagula that naturally close the orifices of the uterine veins, and the fibrinous clots, which, having formed in the veins as the result of adhesive phlebitis, may afterwards become loosened and carried with the blood, through the right side of the heart, into the pulmonary arteries. It is admitted by these authors that inflammation may arise as a consequence of the obstruction so formed. None of these theories, however, will account for the facts observed in the case under consideration:—1. There was no phlebitis to produce pus, or the fibrinous masses of Dr. Simpson. 2. If the obstruction had commenced in the capillaries from their being too small to permit the passage of the pus corpuscles, we should expect the coagulum to fill the small arteries and to have been most adherent in them, instead of being loose and terminating in a pointed extremity. The pneumonia, too, under such circumstances, would probably affect both lungs, as both arteries were plugged.

The enlargement of the vessel and the softened fibrine found at this part lend some weight to Hasse's theory, but if the obstruction was produced by pus, surrounded by layers of coagula, and stopped at this point, why were the arteries beyond this filled and embedded in condensed tissue, and what was the cause of the pneumonia[a]?

Accepting, then, inflammation as the process by which the obstructing mass was formed, it almost follows that we must regard it as one arising from a vitiated state of the blood. Our knowledge of inflammation of the vascular system, in connexion with the puerperal state, is of comparatively recent date. So long as we were only acquainted with it in the form of uterine phlebitis and its consequences, Cruveilhier's explanation of it—comparing the internal surface of the uterus after delivery to a large wound, where the open extremities of the veins came in contact with irritating fluids and had inflammation excited in them—fulfilled all our requirements. But more extended observation shows that the inflammation may first show itself in parts no way exposed to such influences, as in the pulmonary artery in the present instance; in the veins of the neck, as in Dr. M'Clintock's interesting case in the last Number of this Journal; or in the heart or aorta; or in the arteries or veins of the extremities. Before such facts, the theory of the local origin of the disease entirely fails: nor, indeed, was it easy to say, under such a theory, why uterine phlebitis occurred so rarely as it does, when the supposed conditions for its production were so universally present. Dr. M'Clintock's case and the present can only be explained by attributing the inflammation to constitutional causes. In this they but concur with facts every day becoming more familiar. The two cases bear an important resemblance to each other. In both, inflammation of the lining membrane of part of the vascular system occurred after delivery. In one, the deep veins of the neck were affected; in the other the pulmonary artery. In both there was disease of the kidneys—in itself an influential agent in the production of inflammation of parts of the vascular system. Dr. Taylor[b]

[a] The plugging of arteries, in the manner here referred to, is now attracting much attention, under the name "emboli," given it by Virchow. An examination of many of the cases supposed to illustrate this condition must, however, lead to a concurrence with Dr. Todd (Clinical Lectures on Paralysis, &c., page 176), in doubting "that the stoppage of the arterial circulation is always caused by a plug accidentally brought from a distant part of the circulation; and in being more disposed to refer it to a coagulum formed in the artery, promoted by an altered nutrition of its wall—arteritis, if it is chosen so to call it—and connected with a rheumatic or other morbid state of the blood."

[b] Medico-Chirurgical Transactions, vol. xxvii.

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has shown that in one-half of the subjects dying with Bright's disease, traces of endocarditis, old or recent, are found. According to Dr. Chevers[a], most cases of acute aortitis occur in connexion with the same disease. The frequency with which disease of the kidneys is found in cases of sporadic phlebitis is worthy of note; in four cases that I have lately had an opportunity of dissecting, it was present in all. It is remarked by Dr. Simpson[b], that the condition of the blood of the puerperal patient, even under normal circumstances, resembles in composition that found in patients labouring under acute rheumatism, or chronic albuminuria. Here the influences of the two causes were combined: first, disease of the kidney, then the puerperal state. A great tendency to vascular inflammation was the result. The particular site in which this manifested itself was determined by causes of which we have no cognizance. In many cases, no doubt, phlebitis occurs without preceding disease of the kidneys; they form a less numerous class, and in such the vitiation of the blood may be traced to some other source.

Though obstructions of the pulmonary artery occur, perhaps, most frequently in the puerperal state, and under circumstances similar to those of the present case, they frequently occur in males and in non-pregnant females, the obstructing mass varying according to the conditions of its formation. Dr. Chevers describes four forms of clot found in the heart or pulmonary artery:—

1st. Loose, dark crassamentum filling the vessels, but not adherent. It may be associated, he says, with inflammation, or be the result of coagulation after death. Mr. Paget describes several cases in which the clot was of this description: they occurred either, first, as the result of an impediment to the passage of the blood through the capillaries, occasioned by disease of the heart or lungs, as in pulmonary apoplexy, or œdema of the lungs, or by some foreign substance carried into them with the blood; or, second, in connexion with disease of the kidneys, when they form during life, in consequence, he believes, of the circulation of the blood through the vessels being retarded by its having acquired an increased adhesiveness to the walls, produced, probably, by the presence of urea. In all of these cases, I may observe, there will be found evidence of some slight inflammation associated with this form of

[a] Guy's Hospital Reports, vol. vi.

[b] On the authority of analyses by Andral, Gavarret, and Christison.

clot; and in one of them there appears to have been considerable inflammation at a prior period.

2nd. Dr. Chevers describes soft masses or cords of yellow fibrine, laminated, enclosing serum, and attached to black coagula, formed, he believes, after death.

3rd. Firm yellow masses, or cords, laminated, tough, elastic, if in the heart, interlaced with its cords; formed during life. The most remarkable example of this was published by Dr. Corrigan, as having occurred in a case of fever, accompanied with great prostration.

4th. Patches, tubes, or masses of more or less decolorized coagula, opaque and friable, and closely adherent to the lining membrane. These Dr. Chevers believes to be always the result of inflammation. It would be contrary, he says, to all principles of pathology to believe that adherent clots could form without it.

The inflammation giving rise to clots of this last class may be acute or subacute. Dr. Chevers gives examples of the occurrence of each form, from which I have arranged the following Table:—

Acute inflammation—
In connexion with, 1. Phlebitis,
which may be Spontaneous.
„ „ Uterine.
„ „ Surgical.
2. Bright's disease and intemperance.
3. Rheumatism and exposure to cold.
4. Certain forms of pneumonia.

Subacute inflammation—
1. Bright's disease.
2. Rheumatism.
3. Pulmonary apoplexy.

To both divisions of this Table the "puerperal state" must now be added, examples of both acute and subacute inflammation of the pulmonary artery in this state not being wanting.

The symptoms observed in such cases as I have been able to obtain full reports of, carry us but little nearer a means of accurate diagnosis, than those detailed in the account of the case now recorded. In a case published by Mr. Havers[a], the progress after delivery was satisfactory till the fifth day, there being but little trouble with the milk. She then became restless, with her countenance sallow, eye unusually bright and wandering, and manner catching and irritable. She said she

[a] Medical Times and Gazette, vol. iv. p. 167.

had passed a bad night, which she referred to the fulness of her breasts, producing a feeling of palpitation and distress at the pit of the stomach. Her tongue was slightly coated; her pulse, as usual, quick and weak. She improved, so as to be able to get to the sofa with assistance; but on the tenth day from delivery she told her nurse she would dress herself; while doing so she fell on the bed, frothed at the mouth, had a slight convulsion, spoke feebly once, then died. The pulmonary arteries contained clots, mottled, firm, and slightly adherent.

A case is reported by Cruveilhier[a]. A woman was delivered artificially July 11th. There was some hemorrhage.

July 12th. The face was pale; pulse small and frequent; she complained of much debility; there was acute pain in the uterus, increased by pressure. Cruveilhier diagnosed uterine phlebitis. This was relieved by treatment. On the 14th the milk was formed.

15th, 16th, and 17th. Abundant sweats; thirst; various nervous symptoms; headach; tendency to syncope.

18th, 19th, and 20th. Better; but the pulse continues frequent.

23rd. She had an attack of pleurodynia, to which she was subject. Relieved by a blister.

23rd to August 3rd. Progresses to recovery; she nurses her child; the milk had never been suppressed, only diminished.

August 3rd. New symptoms set in: oppression, cough, difficult expectoration, anxiety, nervousness, extreme frequency of pulse. Examination of the chest gave no sign but a slight gargouillement behind and below; secretion of milk suspended.

4th and 5th. Same state; face altered; oppression, cough, pain in the chest, pulse small and very frequent.

Respiration became more and more frequent, and she died on the 9th.

The uterine veins were like hard cords, and contained pus; the pulmonary arteries contained adherent coagula, presenting by their consistence and by their discoloration traces not equivocal of their age.

The two following cases I have condensed from Mr. Paget's report:—

A respectable woman, mother of three children, was admitted to hospital 5th May, 1843. She had acute rheumatism in October previously, lasting six weeks; after this she suffered from occasional wandering pains. About three weeks before admission she suffered from swelling of the eyelids and face,

[a] "Anatomie Pathologique," livraison xi.

and large joints, which were also painful. On admission the swelling of the joints had subsided, but the feet and ankles were œdematous, and she was weak and languid, had great thirst, lay on her back, unable to lie on either side. Respiration, 32 in a minute, occasionally difficult; pulse 116, soft; complexion sallow, with flushed cheeks, dark lines round the eyes, and sharpened features; lips dry and pale; tongue dry and furred, with a red tip; auscultation of heart's sounds detected nothing unnatural; the great depression of the system, the anxiety of expression, and the rapid pulse and respiration persisted.

On 9th May the precordial region was found to be tender, and a distant bellows' sound was heard accompanying the systole. The state of the joints varied from day to day. On the 10th there was a red erysipelatous blush on the forehead and red acuminated papulæ on the chest; sloughs began to form on the sacrum, and debility increased.

On the 11th she had passed a comfortable night, but was suddenly seized with a sensation of great tightness in the præcordial region, violent palpitation, and most urgent dyspnœa. The attack lasted an hour. From this time she sank rapidly. No respiratory murmur could be heard below the right breast, where there was dulness on percussion, the dyspnœa increased, and she died on the 13th.

The lower lobes of the lungs were found to be œdematous and gorged with blood; the upper lobes were healthy; nearly half the branches of the pulmonary artery, from those of the second order to those of the fifth and sixth, and probably yet smaller branches, were blocked up by old coagula of blood. These were cylindrical, soft, and grumous, and in colour were a mixture of gray, pink, and dirty grayish-white, with spots and blotches of deep crimson. They were not more numerous in one lung than in the other, and were irregularly scattered through all parts of each. They did not quite fill the vessels which contained them, but at various parts they adhered closely to the walls.

A widow, aged 70, thin and emaciated, admitted to hospital, 28th of December. Five weeks before, she had got cold, with some cough, but no pain or dyspnœa. A fortnight after this her legs became œdematous. On admission she had a sallow countenance, livid lips, a very irregular and feeble pulse, nearly 100 in a minute; breathing laborious, 32 in a minute; no pain, but a slight degree of tightness in her chest; lower extremities œdematous, with apparent sloughing of the cuticle of the legs. The day after admission she seemed to improve a

little, but the next she sank rapidly; and Dr. Burrows, under whose care both patients were, remarked an extreme hurry of circulation, with feebleness of pulse, great prostration of strength, very similar to those observed in the last case. There were spots of pulmonary apoplexy. In each lung one of the superior and one of the inferior main branches of the pulmonary artery were blocked up by a large, firm, mottled clot, so firmly adherent that it could not be smoothly removed. The colours of the clots were black, deep crimson, rusty, pink, and yellowish. In some of the larger branches there were appearances of clots that had been much altered and organized. These were pale, semi-transparent, soft, and flattened narrow bands, attached firmly to the walls of the artery, presenting all the characters of the organized clots that are sometimes seen attached to the walls of divided arteries. In one instance, one of the largest of the more recent clots was attached to one of these older formations.

In a case that occurred in the Hotel Dieu, and reported by M. Baron, which was probably an instance of spontaneous coagulation of the blood from the presence of urea, as explained by Mr. Paget,—Louis found the following symptoms, which are chiefly indicative of the obstruction:—Violet patches on the face and extremities; the jugulars swollen; the pulse thready, great dyspnœa, making the voice feeble and interrupted; respirations 44, high. Percussion gave a clear sound under the right clavicle, less so at the left, towards which side she lay. The respiration was dry, without râle at the right, and had a sonorous râle at the left side. The beating of the heart was regular and without abnormal sounds. It was difficult to examine the posterior regions of the chest, on account of the dyspnœa and debility. There were old adhesions and general œdema of the lungs; the pulmonary artery contained black, non-adherent coagula.

During the past session, Dr. Gordon exhibited at the Pathological Society, specimens from the body of a man who died from what he described as a very peculiar form of fever. The pulmonary artery was filled with an adherent fibrinous coagulum; the lungs presented a perfect example of intense vesicular emphysema, which, as indicated by the symptoms, formed suddenly the day before his death. It was attributed by Dr. Gordon, and, no doubt, correctly, to the plugging of the artery. "It evidently occurred," he says[a], "in consequence of the great additional labour thrown on some portion of the lungs, from

[a] Proceedings of the Pathological Society of Dublin, Session 1855-6, page 135.

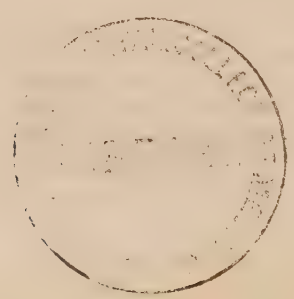
the blood being unable to circulate freely. The fibrinous deposit obstructed, either totally or in part, a certain portion of the pulmonary artery, leaving useless a corresponding portion of the pulmonary structure; of course, there being no anastomosis in the main branches of the pulmonary artery, additional labour was thrown on the remainder of the pulmonary system, sufficient to cause the disorganization in question. This carries out the theory of the production of emphysema of the lungs, as stated by that practical physiologist, Dr. Gairdner, that emphysema of the lungs is a "secondary mechanical lesion, dependent on some condition of the respiratory apparatus, leading to partially diminished bulk of the pulmonary tissue, and, consequently, disturbing the balance of air in respiration."

An analysis of these cases obtains a series of symptoms sufficiently general, at least, to direct attention to the condition of the pulmonary artery. First, there are a degree of fever, with impaired appetite, scanty or suppressed secretions, and vomiting, as usually occurs at the onset of phlebitis elsewhere; a sense of pain at the precordium, and tightness of the chest may be complained of; the countenance gradually assumes the well-known and remarkable phlebitic aspect; great debility is evident, attended, it may be, with a tendency to syncope; along with this there is great quickness of the pulse, which is at the same time small, weak, soft, and compressible. The debility is greater than there is anything in the other symptoms to account for, and evidently depends on the diminished current in the arteries, and deficient supply to the nervous centres and to the muscles. The languid circulation and congested state of the venous system are still further shown by the violet patches, the œdema, and tendency to sloughing of the integuments. The overburdened right ventricle relieves itself by regurgitation: hence the swollen and, perhaps, pulsating jugulars. The respiratory movements are rapid, attempting to compensate by increased action for the limited portion of the lung that is taking part in the aëration of the blood, and vesicular emphysema may now occur, as observed in Dr. Gordon's case.

The constitutional symptoms of phlebitis may now increase in gravity, miliary or red eruptions appear, and the patient gradually fall into the typhoid state, and die. All this time, the uterus, if it be a puerperal case, may manifest no sign of its veins being affected; or, if they had been affected, as in Cruveilhier's case, the disease may have yielded at an early stage to treatment. Instead of terminating thus, the patient

may be cut off suddenly, at an earlier stage, after some unusual muscular exertion whereby the systemic circulation has been hurried, and the great centres deprived of blood more quickly than the diminished stream from the lungs could renew their supplies; or the progress of the case may even yield hopes of a recovery, the graver symptoms subsiding, but the same sad fate ensuing on any sudden exertion.

Of 32 cases of obstruction of the pulmonary artery, from various causes, that have been published, including this that came under my own notice, death occurred suddenly—that is, either in apparent health or in apparently favourable convalescence—in 10 instances. In 6 it occurred during serious illness, but without any symptoms to cause it to be foreseen. In 12 cases its approach seems to have been gradual, and in 4 the mode of its occurrence is not stated. Of the prognosis or treatment of a disease which has hitherto been recognised only by dissection after death, it is almost idle to speak, yet the appearances found in one of the cases already quoted from Mr. Paget afford reason to believe that nature has effected a partial cure. Three of the cases recorded by Dr. Chevers presented very similar traces of a disease that was in process of cure; and certainly, reasoning from analogy, there is no ground for regarding the case as utterly hopeless. How far Art may be able to assist Nature in her attempts at a cure may be questionable. Certain salts, it is believed, as the nitrate of potash, have the power of hastening the solution of fibrinous deposits, and are perhaps deserving of a trial. One thing, however, is certain, that in all cases where the existence of an obstruction may be suspected, the most absolute quiet in the horizontal position, and freedom from emotion or muscular exertion, should be maintained till the pulse regain its fulness and lose its frequency, and the ease of the respiratory movements indicate the perfect performance of the function of the lungs.



Art. XIX.—*Contributions to the Pathology of the Spinal Marrow.* By Thomas Reade, M. B., L. R. C. S. I., Belfast.

1. CASE OF SYMMETRICAL MUSCULAR ATROPHY.
2. CASE OF PARALYSIS OF THE BODY BENEATH THE PHRENIC NERVES, FROM CONCUSSION.
3. PARALYSIS OF THE BODY BENEATH THE PHRENIC NERVES DURING DENTITION.

The narration of rare or anomalous cases is seldom commendable, their utility or instruction being often not sufficiently apparent. The best reason for publication is to be found in the exposition of improved methods of treatment of known diseases, of frequent occurrence, by which the risk of life is lessened under surgical operation or by prescriptions, or the means of investigation of disease, as to its nature, are rendered more exact and certain. As a signal instance of the former, I may mention the systematic and regulated pressure of the femoral artery for the cure of popliteal aneurism; the ligature of internal hemorrhoids; the use of preparations of iodine in tertiary syphilis. Of the latter I would name the exploration of the heart and lungs by auscultation and percussion; the chemical examination of the urine in many disorders of the system: whereby the practice of medicine is made to touch the boundary of exact science, and so reduce the number of the "opprobia" of speculation and uncertainty imputed to the principles of diagnosis.

Rare cases, though of minor value, may, notwithstanding, have strong claims on study and attention from their inherent philosophical interest. The morbid or perverted actions of parts under disease may elucidate and explain the vital, though hidden, actions of parts or organs in health; thereby substituting fact for theory, and certainty for mysticism.

I am under the confident belief that one of these cases, at least, will furnish a subject of much interest to the physiologist, namely, that of muscular atrophy. It is, I presume, a subject new to British medical literature, and only recently taken up in France, more particularly by Cruveilhier, whose cases and reflections I propose to refer to in the course of this paper.

The following cases I am induced to relate, because I conceive they bear a high degree of significance as illustrating the compound functions of the spinal marrow, and are consequently of interest to the physiologist, who is the interrogator of Nature,

and to the pathologist, who by means of the organic changes attempts to interpret the causes of signs or symptoms of disease.

As the nervous system governs and directs every function of the animal frame, harmonizes all in health,—so in disease, its special derangements, from the extent of its sympathies, become the most complicated and abstruse group of maladies which the physician has to encounter; and amongst them are found those diseases for which the insufficiency of the medical art is most popularly stigmatized—hydrophobia, tetanus, and epilepsy.

The same property of mind which fits and guides the naturalist in his researches is mainly the prominent endowment of the skilful physician; it is the faculty of acute observation, the ready mind to discover differences as well as similitudes, to apportion and apply to each its fitting value and preponderance, and, finally, to transmit the acquirements of genius, converted into the common implements or working-tools of ordinary intelligence. Such have been our inheritance from Harvey, Hunter, and Jenner, and, germane to our present topic, Sir Charles Bell, whose scientific zeal and industry made those discoveries in the nervous system which has opened the way and cleared the road for others to advance in; his only recompense was the consciousness of his own genius, the conviction of the truth of his discoveries, and the certainty of a posthumous, but undying fame.

The following cases are demonstrative of the diversity of morbid actions which have their seat in the spinal marrow; also exhibiting that, where we had reason to believe the rudimental nerve structure had sustained organic lesion or injury, a restorative and regenerative action might be set up.

Case I.—Mr. C. C., aged 19, called to consult me, in 1848, concerning a singular malady which had been in progress for eighteen months, and to arrest which all treatment had been unavailing. As he stood before me, clothed, he was a florid, robust, young man, nearly six feet high, dark hair, face full and comely, eyes bright, and, in fact, outwardly a specimen of robust health and excellent constitution. When he stripped his body to the waist, he exhibited neck, chest, and arms, to the elbow-joints, reduced to a most abject degree of emaciation, such as is seen pervading the whole frame of those who have undergone protracted wasting disease. The emaciation—the decadence of muscular fibre together with the tegumentary covering—was perfectly symmetrical, muscle for muscle, on each side of the median line, both on the anterior and poste-

rior aspect of the trunk; the greater and lesser pectoral muscles were little more dense than the strongest brown wrapping-paper; the muscles of the neck, anterior and posterior, proportionately attenuated; the muscles on the scapulæ, particularly the supra and infra spinal muscles, were so much diminished as to show the spine of the bone with distinctness only less than the dry bone; all prominences from the deltoids were gone, and the muscles of the humeri were reduced to the cellular membrane, the mere elementary outline of the muscles, the biceps and triceps especially; from the elbows, the muscles of the forearms and hands displayed the full development of a robust and vigorous man of his stature, with all the concomitant power, sensibility, and aptitude for use. All the muscles outside the pelvis, and those of the inferior extremities, were full, strong, and well-formed.

His history was this:—Within the period of eighteen months he was in all respects, as regards the muscles of his neck, trunk, and arms, in due proportion with the forearms and lower limbs as we now see them, and was distinguished among his companions in all athletic exercises. The first sign of his approaching malady which he perceived was a degree of stiffness or difficulty of executing the motion of putting on or removing his hat from his head. He never suffered pain, and has enjoyed uninterrupted health, his digestive functions being performed with perfect regularity.

The diagnosis was muscular atrophy of special muscles, from abeyance or destitution of the function of nutrition; in what part of the nervous system the organ that presides over muscular nutrition is located I could not tell; I believed it to be as yet unascertained. The case demonstrated that the bilateral source was equally affected. The muscles affected guided me for the motive source to the spinal marrow within the cervical vertebræ. The laws of the nervous system taught me the association of the nerves of motion with those of sensation, from proximate parts of the spinal marrow. The supplies of nutrition are most likely to be derived from the same vicinity; consequently I commenced my treatment by counter-irritation over the cervical vertebræ. I put a seton into the back of the neck; used mercury in small but long-continued doses; kept him under its sensible action for three months; subsequently I made him use dumb-bells to excite nutrition, by the stimulus of gymnastic exercises, so well known to increase muscular growth. He certainly recovered flesh and substance on the scapulæ, especially the spinati muscles. I subsequently employed electro-magnetism for several weeks; from this he con-

sidered he derived great benefit for a time, but afterwards he thought his strength diminished. I pressed it no further, and he discontinued his visits to me in 1850, about two years from the commencement of treatment.

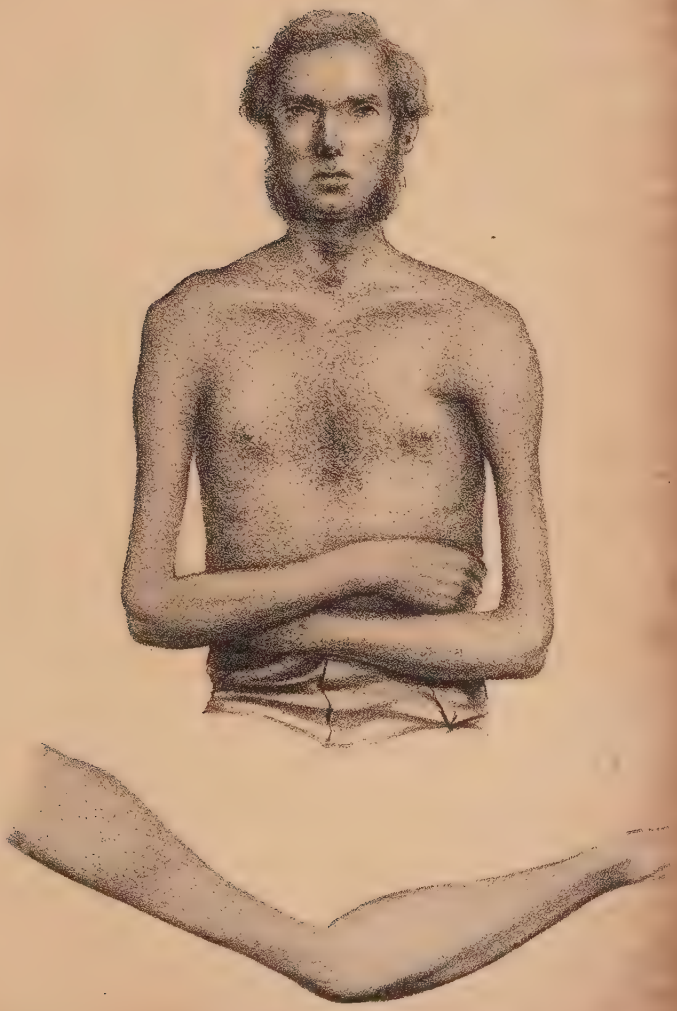
While under my care I showed the case to several medical men; among others, to two of the distinguished Professors of the Queen's College, Belfast, then recently appointed; all concurred in regarding it as a physiological problem which they were unable to explain.

To complete the case, I requested Mr. C. to allow me to see him, in order that I might ascertain the course and progress of his disease. He kindly complied, and came to Belfast to-day, September 27, 1856, about six years since I had last stripped him. The change in his appearance is most decided, and altogether on the side of improvement. The first marked amendment which strikes the eye is the fair amount of adipose substance which has been restored over the whole of the emaciated surface of the chest, back, neck, and arms; he might be said to be in good condition; formerly, the ribs were all prominent, and the conical form of the chest was as apparent as in the skeleton, from the disappearance of the pectoral muscles and the excessive thinness of the tegumentary covering; over the back of the humerus the teguments fell in a loose fold; the muscles of the neck have all been fully restored; the muscles of the scapula considerably augmented; the deltoids in a small degree, but the fibre feels tense and very firm; the triceps and biceps are little better than membrane, but possess true muscular action, perfectly obedient to the will[a]. The muscles of the forearms have lost much of the bulk they had six years ago; the hand became attenuated; this may be accounted for by his occupation, viz., a sedentary and mental pursuit for six years. He reports himself as possessing at present, and during the whole progress of this extraordinary disease, the most uninterrupted good health, his digestive functions being performed with invariable regularity; and never from its commencement up to the present time had he the least pain pending the degeneration of the muscles.

A case bearing the nearest affinity that my researches have supplied, to this one, will be found in Rokitansky's Pathological Anatomy[b].

[a] A photograph of the appearance was taken on the 27th September, 1856. See Plate VII., p. 396, Figs. 1 and 2. I regret I have no drawing or cast of the disease taken in 1848, when the characteristic signs were at their height.

[b] Sydenham Society Edition, 1850, vol. iii p. 303.



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" A labourer, aged 45, who had been much exposed to wet, and was in the habit of allowing his clothes to dry upon him, was attacked, four months before he was seen, with pain in the left shoulder, which continued almost uninterruptedly for six weeks. It was most severe about fourteen days after it commenced, and still became sometimes so violent, that it seemed, he said, as if his arm would drop off. There was neither swelling nor redness, nor was there any numbness or tension when the shoulder was pressed; but he felt great pain when he raised his arm with the other hand. Without that assistance he could not lift it at all. About a week after the affection had begun, he noticed that the shoulder was wasting. As the pain subsided, the wasting gradually advanced; and at the time when he was examined, the deltoid, supraspinatus, infraspinatus, and the two teres muscles, appeared to be completely absorbed, or reduced to thin layers of membrane. The shoulder was free from pain, and the joint healthy, but yet he was unable to lift the arm. There was no emaciation of the forearm or hand."

M. Cruveilhier, the eminent physician and distinguished pathologist of Paris, in an address to the Institute of France, has described, so lately as December 3, 1855, a distinct and definite form of paralysis, with muscular atrophy, for which he claims the priority or originality of discovery. I conceive it best to quote his own words from the " Archives Générales de Médecine, Janvier, 1856:"—

" Le travail que je soumets à l'Académie des Sciences est fondé sur un grand nombre de faits cliniques, faits qui étaient demeurés lettre close jusqu'à ce que l'anatomie pathologique les eût éclairés de sa vive lumière.

" Le hasard a voulu que j'aie été le premier à qui il ait été donné de faire l'anatomie pathologique de cette maladie; c'est là tout le secret de la part que j'ai prise à sa détermination, dont, je ne crains pas de le dire hautement, parce que c'est la vérité, la priorité ne saurait m'être contestée."

He terminates his memoir with the following definite conclusions:—

" 1°. Qu'il existe une espèce de paralysie musculaire tantôt partielle, tantôt générale, qui envahit successivement et graduellement, faisceau par faisceau, fibre par fibre, les muscles soumis à la volonté, en laissant intactes la sensibilité générale et spéciale, les facultés intellectuelles et affectives, et toutes les fonctions de la vie nutritive, autres que la nutrition musculaire.

" 2°. Que cette paralysie musculaire graduelle est la conséquence de l'atrophie progressive des racines antérieures des

nerfs rachidiens et de l'atrophie également progressive des muscles correspondants, avec intégrité parfaite des racines postérieures des mêmes nerfs, intégrité parfaite des cordons antérieurs et postérieurs de la moelle et intégrité parfaite de l'encéphale.

"3°. Que cette paralysie musculaire atrophique doit être rapprochée non de la paralysie qui a son point de départ aux centres nerveux, mais de celle qui résulte de la section des nerfs affectés aux muscles: ainsi la section du nerf radial, du nerf cubital, ou du nerf médian, détermine dans les muscles de l'avant-bras et de la main, auxquels chacun de ces muscles fournit, une paralysie musculaire atrophique identique à celle qui résulte de l'atrophie des racines spinales anterieures, portée à son plus haut degré de développement.

"4°. Que les faits relatifs à la paralysie musculaire atrophique sont pleinement confirmatifs du grand théorème de Charles Bell, en ce qui touche la distinction des racines des nerfs spinaux en racines antérieures ou *motrices*, et en racines posterieures ou *sensitives*. J'ajoute que ces faits pathologiques peuvent en être considérés comme la demonstration la plus complète et la plus *péremptoire*.

"5°. *Que ces observations établissent une influence non soupçonnée des racines antérieures des nerfs spinaux sur la nutrition musculaire.*"

By the light received from the study of M. Cruveilhier's valuable memoir, I conceive this case has established a fact relative to the physiology of the spinal marrow, derived from the observation of its pathological phenomena. Like the division and separation of a ray of light into its elements by the speculum, so by the phenomena of its pathology are we enabled to exhibit and display the constituent functions of the spinal marrow. It is here clearly established that muscular atrophy may exist without paralysis, as paralysis of motion may exist without default of sensation or the converse; atrophy of muscle must ensue on paralysis, as atrophy is inevitable on *disuse*. In Mr. C. C.'s case use never ceased: he could always dress himself, use dumb-bells; his present exercise is pulling an oar in a boat on the sea. It is here established that the symmetrical atrophy may undergo arrest, may even renew the vital action of nutrition to the renovation of the decayed muscle.

Within a few days I have had an opportunity of examining a case such as those described by M. Cruveilhier, of muscular paralysis with atrophy, through the courtesy of Dr. Seaton Reid, Physician to the Fever Hospital of the Belfast Union Workhouse. It is a perfect example of the disease as

described, commencing at the shoulder, and spreading down the arms and hands, and subsequently to the feet. The distinctions which I have pointed out in this case are most manifest and prominent; from the shoulder, the arms hang by the side utterly powerless. At the Union Workhouse they have had a post-mortem examination of another case confirming the pathology of the disease, having found the same morbid changes in the roots of the anterior nerves of the spine, as Cruveilhier has described.

Case II.—*Paralysis of the Body beneath the Phrenic Nerve.*—Mr. J. P., on the evening of the 3rd October, 1835, when descending a hill, was thrown from a tax-cart; as he supposes, the back of his neck and upper and adjoining portion of the dorsal spine struck the ground. He was lifted up insensible, and perfectly powerless. On my visit the following morning, he was enabled to relate to me the occurrence of the accident; after which he had no recollection of anything until he recovered his speech in his own bed; he was perfectly powerless of his body as relates to motion, from his neck downwards, as completely as if his body had been chiselled out of granite; no power to expel urine; breathing performed by the diaphragm. He had passed the night sleepless, and in extreme suffering; he referred the pain to the two upper spinal processes of the dorsal vertebræ; the paralysis did not extend to sensation; he felt rather acutely any pinching or pressure on his limbs or body; pulse 80; artery very round, full, and firm. In person the subject of this accident was about 5 feet 6 inches high, forty-four years of age, had a very short neck, was very round, solid, and fleshy; temperate in habit, and had a very good constitution.

Having examined the cervical and superior dorsal vertebræ, no trace of fracture or displacement, or even the least mark of a contusion on the surface; tenderness on pressure more general. The most remarkable characteristic of this injury was the perfect paralysis of motion, independent of insensibility, the sensibility of the surface being rather exalted: there was priapism occasionally.

October 31st, 8 A.M. He was bled to fainting immediately, and the catheter relieved the bladder of a large quantity of urine. 11 A.M. The pulse having recovered its fulness and firmness, the vein was again opened, and he was bled till he fainted. Altogether he lost about 45 ounces of blood; ordered a purgative bolus. 9 P.M. He complained of acute agony on being moved, but required frequent changes of posture; pulse 80, and soft; the ribs still fixed in respiration, the chest having none of the

expression of a breathing body till the hand was placed on the epigastric region; bowels have not yielded; ordered a purgative enema.

November 1st, 9 A.M. Passed a painful and sleepless night; the enema moved the bowels moderately; ordered to be repeated; chicken broth. 2 P.M. Could adduct and abduct the thumb of the left hand, but very slightly. 9 P.M. Pulse again risen; felt himself very hot and feverish; bled to 20 ounces; fainted.

2nd, 11 A.M. Night still sleepless and painful; very weak for several hours after venesection; had obtained marked power over the lower limbs; slight supination and pronation of the forearm; ordered a purging enema.

3rd, 11 A.M. Bowels unmoved, except by enemata; had some slumber during the night; complained much of pain of his neck; ordered twelve leeches to the part. 10 P.M. Leeches bled indifferently; pain unabated.

4th. No sleep in the night; complained of distressing weight of his limbs; felt as if *immersed in snow below the knee;* bladder very much distended; suffered great distress from that cause; could *raise his legs perfectly off the bed*, and *lift his right arm a little;* pulse quiet and soft; ordered an enema.

It is unnecessary to pursue the daily report of the case: the power of motion progressively increased, but his life was soon brought into nearly hopeless peril by that form of inflammation of the mucous membrane of the bladder, so frequently the forerunner of death from injuries of the spine: enormous collections of viscid, ropy mucus filled the bladder, closing the opening in the largest gum-elastic catheter. I succeeded quite beyond my expectation in relieving his torment, and finally in altogether overcoming the disease of the bladder, and establishing his recovery, by "vesicæ loturæ," now frequently used, but at that time of rare application. It was months before he was about on his feet again; he had not the weakness of the knees of the paraplegic, nor the drag of the leg of hemiplegic paralysis, but his motion was retarded and stiff. There remained rigidity of the fingers of one hand, and of one shoulder-joint. The sensation of the limbs below the knee, as long as I knew him after, was depraved; the sensation first complained of, of being immersed in snow, changed to that of pungent heat, of which he always complained to me. It can scarcely be doubted that the inferior cervical and superior dorsal spinal marrow suffered organic injury; permanent effects remained to testify the fact. He survived the accident about ten years; walked with little difficulty with a common walking-

cane; contracted a second marriage with a young woman, and died some months after. I am not acquainted with the cause of his death.

Case III.—*Paralysis beneath the Phrenic Nerve during Dentition.*—October, 1844. Called to visit a child, twenty months old, who had total paralysis of motion of the lower extremities, as well as the superior; no loss of sensation. Dentition was not yet complete; during this process (dentition) she had repeated attacks of sudden tumefaction of the feet or hands, always successfully repelled by scoring the tumid gums over the coming teeth, conjoined with an aperient dose. However, the attendant of the child, either grown careless or sceptical, having seen so many threatening attacks and no ill result, omitted to send for the medical attendant. In the morning she found, as I have described, her charge paralyzed totally, from the neck down. I could discover no cerebral symptoms; and as my judgment of the case was opposed to active measures, I desired a consultation, and saw the late Dr. S. S. Thomson, who concurred with me in the line of treatment, which was essentially tonic, using counter-irritation over the spine. This treatment was perseveringly carried out. The improvement was slow, but steady; the upper extremities recovered perfectly, but there was great defect for a long time in the lower limbs, the flexors of the legs producing a case of double "talipes equinus;" for this I used Stromeyer's splints with good effect. In 1845 a considerable degree of talipes remained, with very distorted muscular motion of the muscles of the pelvis and thighs. Sir Benjamin Brodie, and the late excellent surgeon, Mr. Bransby Cooper, met me in consultation in London[a]. Sir Benjamin Brodie and Mr. Bransby Cooper recommended a continuance of the systematic tonic course and hygiene which had been pursued; to abstain from all mechanical devices and supports; to rely upon unlimited freedom of voluntary exercise in the open air; and gave a confident opinion, from the degree of recovery which had already taken place, that nature was sufficient to restore the limbs to their perfect development and motion by the time growth was finished. Ten years afterwards, as the patient was in the neighbourhood of London, I requested the parents to submit her for examination to Sir Benjamin Brodie, who, in a letter to me, expressed himself satisfied by the progress of the case.

[a] Sir B. C. Brodie had never seen a similar instance of paralytic seizure in the child; and I believe there is no case of recovery hitherto recorded. Except from my assurance that the child had previously the full activity of her limbs, he would have certainly recognised it as a congenital malady.

The measure of imperfection remaining, he expects, will be finally overcome.

These three cases illustrate a diversity of morbid action arising out of disease or injury of the same portion of the spinal marrow. In Case I. we have solely a lesion of nutrition of certain muscles, beyond which muscles nutrition is intact. In Case II. paralysis of motion is combined with exalted sensibility of the superficial nerves of sensation; this changes to a sense of intense cold beneath the knees; this again to a sense of burning heat, the thermometrical temperature being normal. In the third case, motion alone is lost; on its recovery, followed by contraction of spinal muscles, namely, the gastrocnemii and solei. I think it is indisputable that organic lesion of the spinal marrow existed in every case. There was nothing in common as a symptom in any, except that of motion in Cases II. and III. All other signs were as dissimilar as the originating cause, namely, injury in one, and spontaneous disease in the other. Case III. only bears a similitude as to the seat of disease; it stands alone as a pathological phenomenon, without a parallel, or use unless as an aid to future investigation in physiological science.

In conclusion, I beg to advert to the very different treatment in these three cases of diseases of the spinal marrow. In the first alone was mercury used for its specific action; in the second, antiphlogistic treatment was carried to its extreme limit—bleeding several times to syncope in the recumbent posture; and it was only on the repetition of it that the paralysis yielded. In the third, with the same phenomena of spinal paralysis, the treatment was tonic, with nutrition to the capability of the stomach to tolerate it; and in all, if success be a test of its discretion, it was in accordance with the respective but opposite indications.

Art. XX.—*Observations on Anthrax.* By T. Hawkesworth Ledwich, F. R. C. S. I., M. R. I. A., Lecturer on Anatomy and Physiology in the Original School of Medicine, Peter-street, Dublin.

Were it not that some difference of opinion has lately supervened in connexion with the treatment of anthrax, it would appear almost a work of supererogation to enter into any disquisition on a disease which falls so frequently under the observation of every practitioner in surgery. But the question having been raised as to the necessity of operative interference, and the assertion broadly and without qualification enforced, that a system which experience has deduced from the observation of a century appears not only based on false principles, but further that its action is fraught with injury to the patient, inflicting unnecessary pain, and rendering the case more tedious in its curative advances—removes the charge of writing without a subject, placing the investigator rather in the position of an impartial witness to the truth, than as the advocate of a system based more on the prejudice of authority than consistent with practice derived from observation and sanctioned by experience. But, in addition to the foregoing causes, influencing the selection of this particular disease, there are others of equal moment, when reflectively considered, which, viewed merely in their superficial aspects, seem to have but little reference either to the pathology or general treatment of the affection. This allusion applies specially to the rarity of opportunity possessed by surgeons even under the most favourable circumstances of witnessing the unmodified progress and termination of acute maladies. Thus, when a disease is allowed to follow its spontaneous course, without interference, its final result in the majority of cases is that which indicates either its severity or the opposite. But when the proper treatment is adopted during the progress of the affection, the current of events is so materially changed, that it seldom falls to the lot of many surgeons to witness the unmodified termination of severe diseases; and it is so far fortunate, that an amount of courage not usually possessed by practitioners, would be required to induce a surgeon to permit an acute affection to pursue its spontaneous course without interference, or adopt the prospective system, waiting rather for local or general mischief to ensue, instead of anticipating dangers that may be predicated almost with certainty. Would such conduct be justifiable or even merciful to the patient?—yet it is only by the practice of non-interference,

however baneful to the sufferer, and revolting to humanity, that the accusation embodying the charge of confounding the "post hoc" with the "propter hoc" in therapeutics can be positively refuted. It becomes, therefore, not only tolerable, but absolutely advantageous, to record individual experience that may approximatively assist in enlarging the details of surgical affections, by increasing the number of those practical data on which treatment is founded, and effects either palliated or removed. I am as free to admit the power and beneficence of Nature, as those who substitute a passive faith in its curative influence to the sacrifice of the active practice of their legitimate profession, and fully recognise the justice of the assertion that all acute maladies exhibit a law of ascent until they reach a culminating point of severity, and then spontaneously decline until they totally disappear. Still, I qualify this admission by the statement, that although the law of origin is immutable, its power ceases as a general rule when the disease has passed beyond its inceptive stages, as it then becomes obviously amenable to the influence and control of remedial agencies applied in conformity with the rules deduced from scientific principles. This postulate tends to interfere with the unhappy faith of a special sect, evidenced by the advice "to leave disease to nature's efforts," and it is probably on the assumption that these passive disciples of a convenient system "know not what they say," that their opinions are indulgently tolerated by the profession, and that their active interference might be more dangerous to humanity than merely assuming the office of quiet spectators,—a position possibly more in accordance with their educational resources than the higher requirements of practical surgery. Nature and disease are opposite entities,—the former implying that natural and mutually associated system of action which, in its utmost perfection, signifies health and soundness, or a bodily condition solely influenced by natural laws acting on the primitive constitution of man. Disease, on the other hand, indicates a violent and progressive alteration of the material arrangement of the machine on which Nature expends its influence to produce its salutary actions. Therefore, Nature cannot overcome disease, but can only tolerate its effects, whilst the morbid process is passing through its several stages. Thus, phlegmonous erysipelas invades a part which suppurates diffusely,—the areolar tissue sloughs destroying more or less of the normal constituents of the body, and, at a period determined by the severity of the affection, cicatrization ensues. This is called Nature's effort as a therapeutic agent, whilst it really expresses by the most unmistakable evidence

that it is Nature's defeat and discomfiture in the outworks of the citadel of life—the disease terminating solely through its own exhaustion, because its type is artificial and acquired, not primitively allied with the functions of the body. Art in connexion with such a case impresses on our minds a useful lesson. Incisions arrest the destructive process, and a few days restore the patient to comparative health, and the contrast is striking with that condition which would certainly occur if the disease was permitted to pass through those destructive stages which render an extensive series of changes requisite before cicatrization supervenes, as an essential sequela of actions which ought never have been permitted to exist. Therefore, whilst acknowledging a reconstructive and reparative power, as inherent in Nature's operations, it is the bounden duty of the surgeon to avert the necessity of abnormal action, that, being directly opposed to Nature's influence, exhausts its powers often beyond the resources of its own agencies to cause repair or arrest the total annihilation of the living machine. It does not become us wholly to discard the faith of Nature's worshippers as a therapeutic agency, but to seek rather for the exact basis on which their opinions are founded, subjected to analysis. I fear that those sciolists have mistaken the character of the principle they support, and substituted an imaginary hypothesis based on an obvious fallacy for the evidences of the science of surgery, that point with unerring precision to the operations which Art legitimately accomplishes in disease; and acting as the guard and protector of that nature which we recognise as synonymous with life itself, surgery vindicates its claims to rank foremost amongst those revelations of science which subserve to the progress and welfare of society. It is, therefore, because the pathology and treatment of anthrax clearly illustrate the utility resulting from early and active interference, that I submit, not indeed without some degree of hesitation, a few brief general remarks on the disease, with such selected cases from my own observation, as well as that of others, which may exhibit, from their unusual seats and complications, sufficient interest to justify their publication.

Anthrax, which is an essentially gangrenous disease, commences with a small, hard tumour, at first without any discoloration, but, increasing gradually, its surface becomes livid, merging slowly towards deep black. The hardness now yields to a doughy or boggy feeling; vesicles appear on the surface, which imperceptibly run into pustules; these ulcerate, and discharge a sanious, fetid pus, giving the surface a cribriform aspect. The central portion of the tumour, progressing towards

disorganization, loses its dark tinge, as the total death of the skin ensues, and a grayish slough occupies a prominent median position, whilst around, the dark livid tinging, following its circumferential increase, indicates not only the destructive progress of the disease in the skin, but also the disorganization of a more extensive portion of the areolar tissue beneath it. Subsequently the whole affected structures succumb to the violence of the gangrenous tendency, and a mass of gray, disorganized, shreddy slough, rising above the surrounding surface, marks the amount of destruction that has supervened. There is no well-marked blush of healthy conservative inflammation set up around the tumour, but the skin slowly loses its congested condition, yet only to a partial extent, and a progressive form of ulceration separates the dead from the feebly vitalized portion of the integument that remains. Granulations from the deep surface, indolently arising, succeed finally in throwing off the slough, and a deep ulcer, with flapped and undermined margins and a florid surface, diffusely granulated, is disclosed. At last the granulations become sufficient to support the marginal flaps, with which they coalesce. Contraction commences, and there results a depressed, irregular cicatrix, that expresses the loss of substance the part has sustained.

The *discharge* varies according to the stage or progress of destruction. If an incision is made at an early period, blood and serum escape; as it further advances, fetid sanies or even laudable pus may form the fluid contents of the swelling; but, in either case, small shreds of albuminous tissue or exudation matter are mingled with these products. Sir Astley Cooper compares the discharge to flour and water, but it has only occurred to me once to witness this exceptional secretion, although this eminent surgeon seems to imply that its presence constitutes the rule in carbuncular inflammation. There is yet another description of discharge occurring in fatal cases unmodified by surgical interference, composed of a dark viscid matter, corresponding to the sordes of Pearson; when examined microscopically, its constituents are pus corpuscles, nuclei, elastic tissue, disorganized blood corpuscles, and semifluid granular matter. And lastly, discharge of any kind may be totally absent, the tumour seeming dry and gristly when incisions are made.

Pain.—The character of the pain is also variable, at first amounting to mere uneasiness, alternating with itching of the surface; it then becomes burning, and frequently throbs as in phlegmon, or a sense of tearing may cloak the former, and constitute the prominent source of complaint on the part of the patient. But the presence of pain is by no means universal, as I

have seen a patient passing through a succession of three carbuncles wholly devoid of any painful sensation save stiffness. Nor must the severity of this symptom, *ceteris paribus*, be taken as a measure of the severity of the lesion, or its future danger, for it depends much more on constitutional temperament than on the virulence of the local disorder.

Constitutional Symptoms.—These may be divided into premonitory and symptomatic. The former may precede the development of the local disease even for weeks, and some slight contusion or pressure determine its invasion. They manifest themselves in a cachectic disposition, evinced by anorexia, irregularity of the bowels, heavy urine, containing a copious deposit of lithates, easily induced fatigue, occasional flushing, disturbed sleep, and morning headach. But in other instances these symptoms are of a more asthenic type, indicated by great debility and prostration, anxious expression of countenance, extreme nervous irritability accompanied by despondency, phosphatic deposits in the urine, and the most depressing dyspeptic sensations. Some rare cases occur where all antecedent symptoms are absent; but on this subject there is a difficulty in arriving at truth, as we must depend on the patient's own statements as to his previous condition, and these cannot be relied on, as few persons, in relation to themselves, form the same opinion of health and disease.

In the generality of cases, the symptoms accompanying the actual complaint are more or less sthenic in their early stages —marked by quick pulse, hot and dry skin, flushed countenance, anorexia, constipation of the bowels, bilious vomiting, scanty and high-coloured urine, insomnia. These are followed by others of an asthenic type, becoming more severe as the local disease advances to disorganization. The pulse is rapid, feeble, and often intermits; face sunken in expression; tongue dark brown; sordes on the gums and teeth; stomach irritable; bowels relaxed; abdomen tympanitic; total distaste to food; hiccup; subsultus tendinum; low delirium; while coma, with recession of the tumour, signifies approaching dissolution. In some cases, especially in hospital practice, the typhoid symptoms manifest themselves from the outset, but in private practice we more rarely meet with this condition, except as the sequel of the primary sthenic affection, which latter may even be persistent throughout the entire progress of the case.

Locality; Size; Number.—The disease usually occurs on the back of the body, as the skin in this situation is more dense and less vascular, than on the anterior region. Over the occiput and back of the neck, on the interscapular and humeral

regions, buttocks, and popliteal space, seem the more favoured localities; whilst the eyelid, cheeks, ear, lip, mammary gland, neck, abdomen, penis, feet, and hands are more rarely affected. The size varies from that of a hazel-nut to the dimensions of a large plate; and their number is subject to equal variety, generally solitary, there may be two or even more, but the rule seems to be, that the more numerous the tumours, the smaller the size.

Age and Habits.—It usually comes on after middle life, yet may occur at the age of 28 to 40; but in all those examples the patients are old in every other respect save the one of years, and are worn out prematurely, either by severe mental toil or continuous dissipation; persons who have indulged largely in free living, during early and middle life, and are compelled to refrain in advanced years in consequence of the increasing debility of their digestive system; old servants and coalporters, owing to habits of periodic dissipation, appear as the principal sufferers from carbuncular affections.

Prognosis.—This is materially influenced by the previous habits, constitution, and age of the patient, as the older and more debilitated, the greater becomes the future danger. Sir A. Cooper has stated, that an anthrax over the occiput and neck is always fatal, from an extension of the inflammation to the coverings of the cord and brain[a], but I must dissent from this opinion, such cases generally terminating as favourably as in other situations. Mr. Travers remarks:—"A dry carbuncle is fatal in my experience invariably"[b]; but I believe this assertion to be mainly incorrect in the universality of its application as a rule: for whilst the danger of such a condition is fully obvious, I shall hereafter record a case of recovery from non-suppurative carbuncle, and I am likewise cognizant of a second occurring in a gentleman aged between 70 and 80, who also recovered favourably, although a very different result was anticipated. The size and number of the tumours, from their exhaustive effects on the constitution, indicate serious dangers; but the recuperative power of the constitution, even under an anthrax of immoderate dimensions, is well exemplified in the case which was under the care of Mr. Tagert, in Mercer's Hospital. The sudden invasion of a perfectly black colour is a grave consideration, and the rheumatic or gouty diathesis, paralytic or insane conditions, are most serious complications, as individuals suffering from unsoundness of mind rarely recover from the effects of carbuncle, if severe.

[a] Sir A. Cooper's Lectures.

[b] Travers' Further Inquiry concerning Constitutional Irritation, p 175.

Pathology.—There is much discrepancy of opinion in relation to the precise seat of this disease at its commencement. Rokitansky[a] believes the affection has its origin in the deep layer of the corium, involving the areolar tissue in its meshes, and subsequently extending to the subcutaneous structure. Brodie[b] remarks that "the disease may commence in the elongations of the cellular membrane, but there is something more than this: I do not believe a carbuncle to be a mere local affection; it is a constitutional disease, and is always preceded by something wrong in the general health. It seems to me as if there was something like a poison in the circulation, which is thrown out of it into the cellular membrane in cases of carbuncle, so that we might be justified in classing this disease with small-pox and the other exanthemata."

Dupuytren[c] believes that the dermoid prolongations of the areolar tissues, which become strangulated, are the peculiar localities of the disease, accounting thus for the cribriform suppuration of the skin, and subsequent sloughing; whilst Hunter[d] insists that its source is always tegumentary, and spreads to the cellular tissue.

Professor Miller[e], whose statements must always receive the greatest attention, locates the disease primarily in the areolar tissue, the skin merely suffering a secondary affection; and M. Nèlaton teaches that an anthrax is "rather subcutaneous than cutaneous"[f].

I have not the least hesitation in affirming that the primary hardening is subcutaneous, spreading, as the disease advances, from the deep to the superficial surface of the skin, which ultimately participates in the gangrenous affection; and this seems susceptible of proof from the following observations:—First, if the anthrax is situated in any locality where the skin is naturally lax, as in the eyelid, and may be pinched up from the superficial face of the tumour, it feels soft, elastic, and evidently unaffected. Secondly, on making an incision, and carefully examining the cut surface, it will present the various gradations of the disease becoming less and less intense, as the superficial surface is approached. Thirdly, suppuration in the skin, indicated by cribriform ulceration, does not supervene until after the areolar tissue has become perfectly gangrenous,

[a] Rokitansky's Pathological Anatomy, vol. iii. p. 85.
[b] Brodie's Lectures on Pathology, p. 392.
[c] Dupuytren, Clinique Chirurgicale, t. iv. p. 111.
[d] Hunter on Inflammation, p. 372.
[e] Miller's Principles of Surgery, p. 392.
[f] Nèlaton's Clinical Surgery, p. 36.

and the opposite course would obviously ensue if the disease was tegumentary. Fourthly, when an anthrax is opened in its advanced stage, the subcutaneous extent of the sloughing is always greater than the external diseased aspect of the skin would lead the surgeon to anticipate. These considerations have induced me to speak with decision, and at some length, on this subject, although to the practical surgeon it may appear that too much importance has been attributed to a mere question of pathology; but the value of an exact knowledge of this element of the disease will become manifest in connexion with the treatment of carbuncles by escharotics and stimulants.

Treatment.—This may be examined under the division of local and constitutional; the former consisting of stimulants, escharotics, excision, incision, and non-interference; the latter being essentially tonic and sedative. Blisters were tried rather extensively by Dr. Physick, of Philadelphia, in anthrax, as a stimulant, but with such results as to lead him to discontinue the practice. Nor has subsequent experience given a more favourable impression of a system rather empirical than rational in the principle of its application. Dr. Thielman, writing in the "Berlin Medicin Zeitung," states that he has treated 342 cases of carbuncle, in every stage, with the application of turpentine, and speaks enthusiastically of its success. The form which he adopts is the following:—"Oil of turpentine, 1 oz., emulsed with the yolk of an egg; then add spirits of camphor, 1 oz., and camomile tea, 1 lb. Lint being soaked in this application, is placed over the tumour, and then covered to prevent evaporation. This may succeed in mild cases; but notwithstanding the absence of any experience in this country of so simple an application, no sensible surgeon would venture to expose a patient to the chance of failure and its consequences in a case of ordinary severity, unless the sufferer especially objected to any operative proceeding; then, and then only, would it be justifiable—a proceeding not far removed from actual non-interference.

The use of escharotics has been recommended, and a full detail given by Dr. Physick, as to the stage at which they appear most useful in causing rapid detachment of the sloughs, and allaying the burning pain with which the patient is harassed. He applies potassa fusa, but not until ulcerated apertures have occurred. Muriate of antimony and the potential cautery have also had their advocates, especially amongst the older continental surgeons, but during the last thirty years have deservedly fallen into total disuse, unless in circumscribed

malignant pustules, resulting from the introduction of a poison into the system, which certainly may be checked in their early stages by this decisive treatment. If the action of an escharotic is examined in connexion with anthrax, the surgeon will at once observe that serious objections are sufficiently manifest to place it amongst the exploded practice of the past age of surgical authority. The object is to create a slough of more or less extent, and thus substitute healthy inflammation for that which is atonic. Now if the application is resorted to in the early stage, as the skin is only secondarily affected, a portion of the integument is destroyed, which might and ought to escape destruction. Again, if its use is deferred until a more remote period, it is impossible to determine the extent to which it should be applied, as no external appearance can indicate the exact distance to which subcutaneous disorganization has reached; and the practice of destroying merely the centre of the tumour, and being satisfied that something has been done, cannot be too seriously reproved. Not that it is in itself actually pernicious, but that it precludes those legitimate exercises of our art which experience has sanctioned and rendered authoritative. It has occurred to me more than once to witness the scooping out of carbuncles, with what object I never could discover, even from the operator himself, as it cannot answer any useful purpose, or facilitate the process of repair; and it is only alluded to for the purpose of exhibiting the extent to which an empirical education will lead the profession, and how difficult it becomes to subvert a system without a single feature to redeem it.

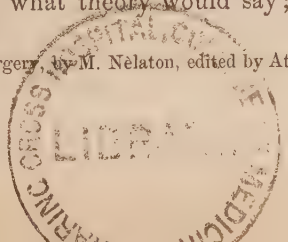
Far back in the history of surgery, the principles of conservatism, in relation to the human body, were recognised as the soundest basis on which to found a rational code of practice, and to the experience of a British surgeon the profession is indebted for proposing the operative proceeding most calculated to avert the changes involved in the progress of carbuncular inflammation. Wiseman states, in one of his surgical treatises, as far back as 1734:—"I advise scarifying or cutting into it, to give a breathing to the humour;" and this practice has not only been followed by the most eminent surgeons, as Dupuytren, Boyer, Cooper, Brodie, Syme, Miller, &c., but also strenuously recommended in the several surgical treatises published up to the present period, with a single exception, to which I will more specially allude hereafter, when discussing the novel recommendation of M. Nèlaton, in relation to the treatment of this affection.

The incision should commence and terminate in the healthy

skin, extending fairly across the tumour, and down to the areolar tissue; and a second cut, at right angles to the former, expresses the well-known "crucial incision." Should the gangrenous tendency continue, it often becomes necessary to prolong the incisions to a variable distance, so long as spreading continues to progress. Poultices, stimulants, and strapping, to induce separation of the sloughs, excite healthy granulations, and cause adhesion of the tegumentary flaps to the subjacent granulating surface, must follow. Can the practice be defended of making those incisions in the early stages, before disorganization has occurred? Its defence rests on the undoubted fact that carbuncles can be arrested in their progress by early interference, and a partial suppuration substituted for extensive sloughing and disorganization, which are certain to follow, if incisions be deferred to an advanced stage of the disease: and it is a rule of some practical importance to recollect, that when anthrax is situated in any part abounding in areolar tissue, or important to the higher functions of the economy, as in the eyelid, on the ear, penis, or lips, the sooner a free liberation of the tumour is procured, the more is the probability of a comparatively favourable result. Yet the surgeon should not indulge in the practice of crucial incision promiscuously, or without due reflection on the consequences, both in relation to the part as well as in connexion with the patient's constitutional powers of repair. If the anthrax has passed into the stage of sphacelus, and ceased to spread circumferentially, the skin and areolar tissue having totally perished, incisions cannot avail, and are absolutely injurious. The surgeon can only incise the healthy tissues around—a proceeding that will not certainly accelerate the detachment of the sloughs, or promote the subsequent stages of the healing process. In extensive carbuncles, where the patient is much debilitated, the utmost caution must be observed in cutting the skin. I was present at a case extending from the gluteal region to the popliteal space. The skin had not as yet suffered much, but the patient, although only thirty-six years old, was in a state of extreme debility, with an intermitting pulse; a long incision was made at once, corresponding to the entire length of the tumour, with two cross cuts down to the fascia; the bleeding was inconsiderable, but the man seemed agitated, and immediately suffered from a severe rigor. He quickly sank, and died in two hours and ten minutes from the period of the operation, having never rallied, even under the administration of stimulants, succumbing to the shock of a severe operation, acting on vital powers already enfeebled by disease. Should the patient seem col-

lapsed, and the tumour require division to a large extent, it is good practice first to administer stimulants locally and generally, so as to induce a well-marked reaction before the knife is put into requisition; and if there is a probability that any hemorrhage will occur calculated to increase the prostration, the incisions should be made piecemeal, plugging that already divided with lint dipped in turpentine, to avert bleeding (see Case III.) But as the centre of the tumour is approached, the cut may be performed more boldly, as there is but little tendency to bleeding when disorganization has appeared. Yet the existence of hemorrhage must not be feared too much in those cases, where the constitution is comparatively unimpaired. Mr. Tagert, of Mercer's Hospital, divided an anthrax over the occipital bone; the patient went immediately and took a warm bath; severe bleeding ensued from a large branch of the occipital artery, which required more than an hour to restrain, the patient then having lost a very large amount of blood. Still the case progressed without any untoward symptom, and terminated favourably. The carbuncle may spread even after free division, and then it is recommended to prolong the original wound; but I have witnessed the failure of this practice so often, that the selection of points between the original incisions appear preferable on rational principles. M. Nèlaton, the distinguished Parisian surgeon, is reported to have made the following observations on a case of anthrax, in the wards of the Clinical Hospital of the Faculty of Medicine[a]:—"An incision would not be made into the anthrax, because that does not shorten the duration of the healing, but, on the contrary, it lengthens it. Let an anthrax alone, there will be openings formed, pus and the core will come out, and after that it will heal; but if you make incisions into it, the edges of the incision will separate very widely, and the healing process will be very long. It must not be imagined that the incisions relieve a strangulation; this strangulation, of which writers speak, is, to say the least of it, doubtful, and that which is doubtful in theory is still more doubtful in practice. Suppose that an anthrax was formed by the inflammation of a number of the small fatty masses contained in the areola of the derma. A crucial incision would open but a very small number of them; you could not relieve strangulation in all of them without making incisions in all directions. This is what theory would say; and M. Nèlaton

[a] Clinical Surgery, by M. Nèlaton, edited by Atlee, p. 35.



said he declared most positively that practice showed that the only effect of incisions was to delay the cure."

It is no doubt indisputable that cases of carbuncle do occur which pass through their several gradations, to sloughing and extensive destruction of the tissues, and the patient survives the ordeal imposed on the constitution; but the contemplation of these very cases, although they do recover, forms the strongest argument in favour of active interference on the part of the surgeon. By early and free incision, a comparative immunity from danger is insured; by the substitution of limited suppuration and partial sloughing, for an extensive system of destruction that requires the greatest efforts on the part of the constitution to withstand, and equally developed powers to repair; by checking the circumferential progress of the disease, in creating a salutary action in the surrounding tissues; and by eliminating the products of decomposition confined within the tumour, that may contaminate the blood-mass, and induce an irremediable constitutional disorder. Professor Miller expresses himself thus on the subject:—"So long as the power of swallowing remains, remedies are to be perseveringly administered; for, provided suitable local treatment have been practised, patients often rally completely, even though previously *in extremis*. Omit the use of the *bistoury and potass*, and all constitutional care, however skilful and unwearied, will not arrest the tendency to collapse, or avert a fatal issue"[a]. Brodie, Dupuytren, and Cooper are equally decided as to the utility of active local treatment, as the only resource of surgery in this affection. These observations may then be closed by the statement, that in the treatment of carbuncle, incisions judiciously executed, in the early stage arrest its progress, at a more advanced period mitigate its violence, and in the latter phase of the disease avert its fatal consequences.

Many surgeons apply fused potash to the recent wound and exposed surface, but it does not seem absolutely necessary, unless a rapid cure can be considered as sufficient compensation to the patient for the suffering it induces. Perhaps as a general rule it is preferable to omit the use of the escharotic altogether, having recourse to a milder substitute. Ordinary linseed poultices answer remarkably well; but where the tumour is large, in order to obviate the weight of the poultice, Mr. Tagert has substituted French wadding with the best effects. Turpentine, elemi ointment, or resin, are useful stimu-

[a] Miller's Principles, p. 373.

lants to accelerate the detachment of the sloughs; but where they induce pain, and the skin is hard and congested, their application is contra-indicated as being more injurious than otherwise. Fermenting carrot and port wine poultices may occasionally prove serviceable, where a change of local treatment is requisite; but other applications are certainly, if not more efficacious, at least more convenient in emergency. Compresses and strapping cannot be dispensed with when the wound has commenced to granulate, as by this treatment contraction of the ulcer is favoured, and the union of the loose flaps of integument with the subjacent parts is promoted to an extent scarcely credible to those who have not watched closely the progress of a case of anthrax.

In the constitutional treatment it is well in the early stage to administer mild alterative aperients, until the secretions are modified, and then have recourse to tonics, nutritious diet, wine, porter, and other stimulants, but it is necessary to watch for any specific tendency of the constitution that is calculated to impair the reparative powers of the system. On this principle I have found the administration of depurating salts, combined with colchicum, most advantageous, where the gouty diathesis was apparently manifest. But whilst the treatment progresses according to the foregoing principles, *opium* will be found to be the most powerful adjuvant in relieving local irritation, promoting sleep, and calming the restless condition of the patient. I have administered it in cases where there was present low delirium, and conceive that its use was productive of the most decided benefit to the patient. The following cases illustrate the several statements advanced in this paper and are reported, more with a view to brevity than as studied composition.

Case I.—*Anthrax of the external Ear.*—Mr. G., a solicitor, aged 32, of a nervous temperament, has been for some time gradually losing health and strength; he observed on the morning of the 13th of June, 1856, a slight swelling of the external ear, accompanied by a sensation of stiffness, which, increasing in severity on the following day, led him to seek advice. His countenance was pallid and care-worn, and he complained of a sense of exhaustion on the slightest effort. Pulse feeble, 110; skin cold, clammy; insomnia, with total loss of appetite. Tongue furred, bowels constipated, urine profuse, with a large deposit of phosphatic sediment. The auricle of the ear was swollen to an extent that wholly obliterated its figured outline, the surface being perfectly smooth. It is hard to the touch and torturing

with a continual burning pain, aggravated by any motion of the lower jaw or head. Assisted by my brother, I made a deep incision on the mastoid aspect of the auricle, and two smaller but equally deep over the *helix* and *anti-helix*. Much bleeding followed, which was encouraged by warmth, but this principally occurred from the first incision; ordered to poultice the ear, and take three grains of calomel at night, to be followed by a saline aperient draught.

16th. The medicine having freely acted, he felt somewhat relieved. The mastoid aspect of the ear has returned to its original colour, the line of the incision being now merely superficial, but the external surface still remains swollen, the livid colour merging into black at some points; there are also small superficial pustules on the surface, that seem to augur an unfavourable termination to the case; the incisions previously made in this situation are glued together at the margins, and, on being opened, discharge a fetid sanies. The former cuts were now prolonged, each extending to the depth of the cartilage; the bleeding was encouraged for some time; ordered the poultice to be continued, and to take bark in effervescence, with one grain of opium at night, as sleeplessness is distressing.

19th. He seems much improved, but there is some slight sloughing on the anti-helix; ordered to continue the medicines, increasing the opium to one grain and a half; to apply a cataplasm of carrots constantly.

21st. The slough has separated, and the skin is detached for some distance from the subjacent cartilage; ordered to cease poulticing, and a compress was applied on the auricle, which was equally supported, and then strapped. To continue the medicines.

23rd. The ear has become almost perfectly healthy, and I did not see him again until the 29th, when he complained of a small painful tumour in the posterior inferior triangle of the neck. On examination this proved to be an incipient carbuncle, evidently showing a constitutional tendency to the formation of diseases of a low type. It was promptly incised, and did not *slough*. Under the administration of sulphate of iron and magnesia, warm baths and residence at the sea-side, this gentleman was perfectly restored to health.

Case II.—*Anthrax of the upper Eyelid.*—Mr. M., a druggist, aged 37, of a feeble constitution, with light hair, fair complexion, and particularly fine skin, was attacked, on the night of the 19th of May, 1855, with a dull pain in the orbit,

eye, and surrounding parts. In the morning he was startled at the appearance of his left eyelid (upper). On reaching my house, about a mile distant from his home, he fainted, and seemed in a state of great depression, both mentally and physically. The eyelid was undiscoloured, except at the ciliary margin, where it was livid, approaching to black, much swollen, and the accompanying hardness conveyed to the finger the resistance of sole-leather; ordered a poultice to the part, to take a saline purgative, and a grain of opium at bedtime.

21st. The whole lid is livid, and as hard as brawn, the patient complaining of a tensive, burning pain; sleepless and irritable. Pulse 120; some headach; no swelling of the cheek or disease of the conjunctiva. Although all the symptoms signified the nature of the disease, I determined to give the case another day's law. Ordered one grain of opium three times each day, bark in effervescence, and emollient poultice.

22nd. Pain diminished; slept well; pulse 90; but the eyelid is dark, vesicated, and fluctuates at one particular point. I now made a deep incision near the ciliary margin of the lid, from which pus and blood escaped in quantity. Ordered to repeat the poultice and opium, with bark mixture.

23rd. The discharge is profuse, but comparatively healthy; the swelling is subsiding gradually; but the areolar tissue has escaped sloughing most fortunately, and the wound healed favourably in a short time without deformity.

In this case the diagnosis lay between anthrax, malignant pustule, and erysipelas; but, from the symptoms, little difficulty was experienced in arriving at a correct conclusion, and I only regret having deferred incision until suppuration had occurred.

CASE III.—*Anthrax on the Back, of an enormous size.*—For this case I am indebted to Mr. Tagert, of Mercer's Hospital.

An old man, aged between 70 and 80, was admitted into Mercer's Hospital, with an anthrax on his back, *thirty-six inches in circumference,* hard and brawny for some extent within its boundaries; soft, quaggy, imperfect fluctuation in its centre, which was drilled with a number of small circular apertures; great burning pain; sense of tightness and weight. Commenced as a furuncle three weeks previously; great prostration; pulse imperceptible; surface cold, with rigors; *no sleep for three weeks,* nor were the bowels relieved for that period; tongue whitish and moist. Placed in bed; warm jars to the feet; a tumbler of hot punch was administered; and, *reaction having taken place,* it was incised piecemeal, thus:—

An incision three inches long, commencing at top, was made, and immediately filled with lint dipped in turpentine; similar incision at one side, then beneath, and again at the opposite side, each cut being *staunched* before another was made; lastly, a crucial incision was made in the centre, from which flowed purulent matter; cotton wadding instead of poultice; large turpentine enema; anodyne at night; beef-tea; punch at intervals.

The treatment before the operation, and the mode of its subsequent performance, in this case, exemplify the scientific adaptation of principles to practice; and the result—the man being cured in three weeks—fully justifies the claims of this novel practice to serious consideration where the tumour is extensive and the patient collapsed.

Case IV.—*Dry Anthrax, with Gouty Diathesis.*—Mr. T., residing in Rathmines, aged 61, of a sanguine temperament, suffered from an anthrax, in March, 1853, beneath the fold of the buttock, into which a crucial incision was made at the proper period; he has been on full diet, with porter and wine, for some time. Eight days having elapsed without improvement, I was requested to see him. The aspect of the patient is far different from that of the generality of cases:—Face flushed; eyes suffused; breathing rather oppressed; abdomen tumid; severe thirst; tongue loaded; bowels irregular; urine scanty, high-coloured, copious deposit of lithates; pulse 100; sleeps badly, and is startled by fearful dreams.

The anthrax has burrowed under the flaps, which are gorged with blood, being stiff and hard when pressed between the fingers, without the slightest discharge; there is a bright blush around, and the pain is of a teasing character, aggravated at night; never had carbuncle before, but had gout in the right foot two years since, and seems predisposed to its invasion. Ordered to cease all stimulating applications and full diet, and to substitute wadding, vegetable food, with four ounces of wine; a purgative mixture of sulphate of magnesia with wine of colchicum.

22nd. No alteration; the medicine has acted freely; opium, one grain three times each day.

24th. Much improved; the tumour beginning to suppurate; substitute bicarbonate of potash for sulphate of magnesia in the colchicum mixture.

26th. The sloughs are disposed to separate, and the patient wishes to get up. From this period he continued to convalesce most favourably, and was perfectly well on the 7th of April.

Case V.—*Anthrax with sudden Death.*—For this interesting record I must again express my obligations to Mr. Tagert.

Ellen Casey, aged 40, suffered from aggravated dyspepsia for some months; and a few days prior to her admission, an anthrax, of medium size, formed on the back, between the scapulæ. In the early part of the day, of the 7th January, she was suddenly seized with severe abdominal pains, *no vomiting*, alarming prostration, coldness of surface, and failure of the circulation. She was brought to hospital at 3 P.M., and I saw her at visiting hour on the 8th, and found her sinking rapidly: skin cold; pulse nearly gone; eyes haggard and glassy; complains of pain over the region of the bladder, where there was some fulness. *Anthrax has almost disappeared.* A catheter introduced, but scarcely any urine came away. At 3 P.M. she died, twenty-three hours from the time of her admission. *Autopsy.*—Diffused redness of the peritoneum generally; no adhesion; contents of an enema that had been administered were found extravasated in the peritoneum; part of transverse colon inseparably adherent to the stomach near its bulging extremity. This adhesion must have been of long standing, as the coats of the two viscera were incorporated together. A dark spot, with *a small opening in its centre, was observed on the transverse colon at its junction with the descending portion. On slitting up the gut a circular ulcer, with rounded and bevelled edges, was found,* capable of admitting the little finger to pass with facility.

Sir B. Brodie mentions a remarkable case, in his Lectures on Pathology[a], of the sudden subsidence of an anthrax, and the occurrence of dissolution, in twenty-four hours, from blood contamination. Mr. Tagert, from his extensive acquaintance with the literature of surgery, suggested that his case might possibly resemble that of Brodie, and made it the subject of special clinical observation; and unless a post-mortem revealed the actual cause of death, it might, with justice, be placed in the category; for let it be remembered that one symptom of perforation was absent—that is looked on as pathognomonic—namely, vomiting; and the other abdominal symptoms were unpronounced to an extent that would lead to their particular investigation as the source of the fatal agency. It would have been well that a post-mortem examination had attached a greater amount of certainty to Brodie's case, as our faith is now rather shaken in the pathological explanation he proposes, notwithstanding the recession of the tumour; for on this subject I find that Perrez, writing in Broussais' Annales, as far back as

[a] Brodie's Lectures on Pathology, pp. 393-4.

1825, notices the subsidence of anthrax, particularly where the stomach is the seat of irritation or disease.

CASE VI.—*Anthrax of the Lip.*—Edward Nolan, aged 54, a porter, unhealthy-looking and dissipated, states that he has never suffered from any severe illness or cutaneous affection; that he observed, on the 3rd of March, 1856, a stiffness in the upper lip, which very much interfered with his articulation. At first he attributed its occurrence to cold, but subsequently smoking an unclean pipe. On the 5th the lip was largely swollen, and in its centre there is a hard tumour, about the size of a walnut, of a livid colour at its most prominent point; the nose and cheeks also participate in the swelling. Pulse 100, small; furred tongue; loss of appetite; intense thirst; bowels constipated; urine pale in colour, deposits phosphates[a]; great intolerance of pain; sleeplessness. Ordered a mild saline purgative; poultice the lip; remain in bed; to take one grain of opium at bed-time; and to drink lemonade to relieve thirst.

5th. The swelling has augmented, and there are small pustules on the mucous surface of the lip. The conjunctiva is much swollen, and there is well-marked chemosis, but no corneal opacity. I now made deep incisions in the lip, and allowed it to bleed profusely; turpentine dressing, with poultice.

7th. Suppuration well marked; patient complains of incessant hiccup and restlessness. Ordered one grain of opium three times daily, one pint of porter, with beef-tea *ad libitum*. The further progress of this case was remarkably favourable, and is interesting in showing that chemosis is not always followed by sloughing of the cornea, even though incisions fail to be made.

I purposed recording cases of anthrax on the penis, feet, and mammary gland, but abstain from the fear of prolonging this paper beyond the legitimate limits of periodical literature. I have endeavoured to avoid any theoretical points, and sought only to discuss those questions purely practical in their nature, and therefore valuable in their relation to the *art of surgery*.

[a] I have carefully examined the urine in thirteen cases of anthrax, and have failed to detect sugar, as mentioned by Prout and Brodie.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

1. *Lunatic Asylums (Ireland)—A Bill to explain and amend the Acts relating to Lunatic Asylums in Ireland.* Prepared and brought in by Mr. Horsman and Mr. Attorney-General for Ireland. Ordered by the House of Commons to be printed, 15th April, 1856. [Bill 100.]

2. *Lunatic Asylums (Ireland); No. 2.—A Bill to explain and amend the Acts relating to Lunatic Asylums in Ireland.* Prepared and brought in by Mr. Horsman and Mr. Attorney-General for Ireland. Ordered by the House of Commons to be printed, 20th May, 1856. [Bill 149.]

3. *Act* 19 *and* 20 *Vict., Cap.* 99, *to amend the Acts relating to Lunatic Asylums (Ireland), so far as relates to Superannuations.* [29th July, 1856.]

4. *District Lunatic Asylums (Ireland). Copy of Treasury Minutes, dated* 10*th August*, 1855, *appointing a Commission for inquiring into the Erection of District Lunatic Asylums in Ireland; of the Report of the said Commissioners, dated* 14*th December*, 1855; *and of further Treasury Minutes, dated* 18*th December*, 1855, *founded on the said Report* (Mr. Wilson). Ordered by the House of Commons to be printed, 5th February, 1856.

5. *Lunatics. Return of Lunatics against whom Commissions of Lunacy are now in force, and the Amount of their Annual Incomes, &c.* (Mr. Tite). Ordered by the House of Commons to be printed, 26th May, 1856.

6. *Tenth Report of the Commissioners in Lunacy to the Lord Chancellor.* Ordered by the House of Commons to be printed, 5th June, 1856. 8vo, pp. 40.

7. *The Asylum Journal of Mental Science, published by Authority of the Association of Medical Officers of Asylums and Hospitals for the Insane.* Edited by JOHN CHARLES BUCKNILL, M. D., Physician-Superintendent of the Devon County Asylum. Quarterly Numbers, 15, 16, 17, 18, and 19, being from October, 1855, to October, 1856.

8. *Report of the Pennsylvania Hospital for the Insane for the year* 1855. By THOMAS S. KIRKBRIDE, M. D., Physician-Superintendent. Pamphlet, pp. 72.

9. *Twenty-sixth Annual Report of the Belfast District Hospital for the Insane, for the year ended* 31*st March*, 1856. By ROBERT STEWART, M. D., Physician-Superintendent. Pamphlet, pp. 48.

10. *The Journal of Psychological Medicine and Mental Pathology.* Edited by FORBES WINSLOW, M. D., D. C. L. No. 32, for October, 1855; and Nos. 1, 2, 3, and 4, of New Series.

11. *Sixteenth Annual Report of the Crichton Royal Institution for the Insane, for the year ended November*, 1855. By W. A. F. BROWNE, M. D., Physician-Superintendent. Pamphlet, pp. 42.

12. *Fifth Annual Report of the Wilts County Asylum at Devizes, for the year* 1855. By JOHN THURNAM, M. D., Physician-Superintendent. Pamphlet, pp. 46.

13. *Annual Report of the Royal Lunatic Asylum of Aberdeen to* 31*st March*, 1856. By ROBERT JAMIESON, M. D., Physician-Superintendent. Pamphlet, pp. 19.

14. *Annual Report of the Oxford and Berks Asylum at Littlemore, for the year* 1855. By WILLIAM LEY, M. R. C. S. E., Surgeon-Superintendent. Pamphlet, pp. 37.

15. *Eighth Report of the Somerset County Asylum at Wells, for the year* 1855. By ROBERT BOYD, M. D., Physician-Superintendent. Pamphlet, pp. 61.

16. *Tenth Annual Report of the Devon County Asylum at Exminster, for* 1855. By JOHN CHARLES BUCKNILL, M. D., Physician-Superintendent. Pamphlet, pp. 21.

17. *Third Annual Report of the County and City of Worcester Asylum for* 1855. By JAMES SHERLOCK, M. D., Physician-Superintendent. Pamphlet, pp. 67.

18. *First Annual Report of the Sligo District Asylum, to 31st March*, 1856. By JOHN M'MUNN, M. D., Physician-Superintendent. Pamphlet, pp. 39.

19. *Eighteenth Annual Report of the Suffolk County Asylum, for the year* 1855. By JOHN KIRKMAN, M. D., Physician-Superintendent. Pamphlet, pp. 26.

20. *Twenty-ninth Annual Report of the Perth Royal Asylum, for the year ended June*, 1856. By L. LINDSAY, M. D., Physician-Superintendent. Pamphlet, pp. 22.

21. *The American Journal of Insanity.* Edited by the Officers of the New York State Asylum ; Numbers for October, 1855, and January and April, 1856. Utica, New York.

22. *Remarks on the Lunacy Laws, as also Asylums of Scotland and France.* By JOHN WEBSTER, M. D., F. R. S., F. R. C. P. Reprinted from the Psychological Journal. Pamphlet, pp. 16.

23. *Contributions to the Pathology of the Brain, Fevers, &c.* By ROBERT BOYD, M. D., F. R. C. P., Physician to the Somerset County Asylum. Reprinted from the Edinburgh Medical Journal. Pamphlet, Parts 1 and 2, pp. 32 and 16

1, 2, 3. SINCE our last extended review "On Insanity and Hospitals for the Insane"[a] appeared, the Legislature, during its recent session, has been fruitful in one respect at least, namely, of proceedings in connexion with insanity, more especially with reference to the district hospitals for the insane in Ireland. At the head of our review list, for this our seventh annual series, are the titles respectively of Bills, Blue Books, and other Parliamentary proceedings, which have each attracted, in a very large measure, both professional and public attention, the interests involved being of considerable importance; and with them, accordingly, we open our annual record of the *notabilia* which have occurred during the past twelve months in this particular and interesting department of the profession. And, first, we have the bill brought in by Mr. Horsman, the Irish Secretary, entitled, "A Bill to explain and amend the Acts relating to Lunatic Asylums in Ireland." This Bill was read a first time on the 15th of April last, and ordered to be read a second time on the 20th of the same month. Its preamble recites the several Acts having reference to the Irish Asylums, commencing

[a] See vol. xx., No. 40, N. S.

with 1 & 2 Geo. IV., c. 33, enacted in 1821[a], down to the last amended Act, 18 & 19 Vict. c. 109, passed in 1855, "for the repayment of advances for the erection and enlargement of Asylums in Ireland." Its first clause declares that all appointments of officers for asylums, and their salaries, and all matters and things heretofore done by the Irish Government, with respect to such appointments, shall remain good and valid for all purposes whatever. The second clause empowers the Lord Lieutenant and Council to fix and determine the number and description of officers, their duties, salaries, appointment, and removal. The third and fourth, the only remaining clauses, are simply interpretative.

It will be seen by the first and second clauses that the Government made a bold attempt to monopolize the entire power over and patronage of the District Asylums, by making all within their walls subservient to its will, so that there would have been nothing to prevent the carrying into effect the most dangerous innovations. But the framers of this Bill had so completely overshot the mark, and raised such a storm of public indignation against its provisions, that it never went beyond a first reading, a happy result, which was chiefly owing to the decided and manly course pursued by the Governors of the Belfast Hospital for the Insane, who lost no time in sending over a deputation of their independent body to wait on the Irish Secretary in London, and with such effect as to induce its withdrawal and the substitution of Bill No. 2, which next comes before us. This was, in many respects, a great improvement on its predecessor, but still retained much that was highly objectionable. The clauses in it were thirteen in number, viz.:—First and second, stating title and interpretation of terms; third, appointments of officers, same as in No. 1, with this qualifying addition, "Such appointments shall be subject to the powers and provisions hereinafter contained;" fourth giving power to the Lord Lieutenant and Council to fix and determine the number and description of officers; fifth, the local boards, subject to the approbation of the Lord Lieutenant and Council, to fix the salaries of officers, but, neglecting to do so, or the Lord Lieutenant and Council disapproving of the proposed salary, the latter to be empowered to fix and determine the same; sixth, the local boards, with the approval of the Lord Lieutenant and Council, from time to time, to alter

[a] The preamble is at fault here, for the first Act providing for the "Establishment of Asylums for Lunatic Poor in Ireland," was the 59 Geo. III., cap. 106, and passed in 1817.

the salaries to be paid; seventh, "the manager, matron, and visiting physician," to be appointed by the Lord Lieutenant, and be removable at his *pleasure;* eighth, all officers, other than those specified in the preceding clause, to be appointed by the local boards, and removable at their pleasure; ninth and tenth, empowering the local boards, on the recommendation of the inspectors, or one of them, to direct that any officer who is incapable from age, infirmity of mind or body, or otherwise, to discharge the duties of his office, shall be superannuated, and shall receive such yearly superannuation provision as, upon consideration of all the circumstances of each case, shall appear to be just, not exceeding such proportion of his salary and allowances as hereinafter mentioned—that is to say, for above fifteen and less than twenty years' service, a pension not exceeding two-thirds of his salary and allowance—and, for above twenty years' service, a pension not exceeding his salary and allowances; eleventh and twelfth, making provision for the admission of a class of pay patients whose relatives are unable to meet the expense of private asylums, "but to be treated in all respects as if pauper lunatics, clothing only excepted;" thirteenth, "this Act, and the said recited Acts, shall be construed together as if one Act." We have stated above that this Bill was an improvement on No. 1, so far as regarded all the minor appointments being now left, as before, in the hands of the local authorities; how it could once have entered into the mind of the Government to take upon itself the nominating, appointing, and dismissing of the cooks, scullions, &c., of all the asylums in the country, appears to us passing strange.

Another very commendable improvement in this Bill—one which met the full and hearty approbation of all parties, as being only a reasonable instalment of justice to most deserving officials, who of all others should command our warmest sympathy and support from the nature of their invaluable and unceasingly anxious duties and responsibilities—was the clause for providing superannuation pensions, the withholding of which to the present time had been long felt, not merely as an individual hardship and grievance, but as an absolute drawback to the good and efficient working of the asylums themselves; for, in consequence of no retiring allowances being available for worn-out officers and servants, inefficient parties were retained in the merely nominal performance of duties they were physically incapacitated from fulfilling, they very naturally clinging still to what was their only means of support, but, nevertheless, to the sacrifice of the best interests of the institutions thus circumstanced. This was another point of detail for which

the Inspectors most laudably and perseveringly endeavoured to obtain a remedy, by the granting of pensions, as in all the other departments of the public service, but fruitlessly, till the present time. In their Official Report to Parliament, so far back as 1847, they write thus strongly on this head:—"There is a very important amendment required in any new Lunatic Act which may be passed, which is, to provide for the superannuation of officers and servants in district asylums who may be rendered unfit for further duty from advanced age or illness, and whose long and faithful services entitle them to an adequate retiring allowance. This is a subject which has been often forced upon the attention of the public authorities, and one which, it is to be hoped, will not be lost sight of, as the most serious inconvenience is felt in many of the asylums from the fact of Government being obliged, from motives of charity and good feeling, to continue the inefficient services of aged and worn-out officers and servants, when they should otherwise be provided with a competent retiring allowance for their future support"[a]. Nearly ten years have elapsed since the above appeal was made, and which was repeated in each subsequent Report, but without any avail, until the late session, when at last the call of those Government officers was responded to by a pension clause being embodied in the Bill now under review, with what result will soon appear. If officers and servants at that distant period were "aged and worn-out," what must they be now, or, rather, what must be the injurious effect to the patients over whom they are placed in charge, for the very same men, we believe, continue still in office? This is truly a very grave and "serious inconvenience," and ought to be protested against as a cruel injustice both to "worn-out" officers, and, as a consequence, badly attended-to and cared-for patients. Not longer to dwell here on this subject, we pass on to the eleventh and twelfth clauses of No. 2 Bill, providing for the admission into our public asylums of a class of patients neither "pauper" nor private. As this is a subject upon which we have already expressed a decided opinion[b], we have only now to reiterate our former views, which are altogether hostile to this method of removing what we admit at once to be a great evil. But still greater evils would be produced by the clumsy and ill-conceived plan proposed to be adopted by the authority of the Legislature. We trust that Parliament will pause before it puts its *imprimatur* upon any such organic change in

[a] Inspectors' Third Biennial Report, 1847, page 12.
[b] See our sixteenth volume, No. 32, N. S., page 366.

our excellently conducted hospitals for the insane, specially established, be it observed, for the insane "poor," and not for any class or description of remunerative patients, no matter at what low rate such remuneration may be made. The principle is a wrong one, we affirm, and very decided should be the stand made against it. Without fear of contradiction, at least from those *practically* acquainted with the hourly working of a public asylum, the parties alone qualified to give an opinion upon this point in particular, we say that to mix up professedly paying patients of any class, and the ordinary or non-paying patients in the same building, in the same rooms by day and by night, will most seriously tell against the comfort and harmonious working of the establishment as a whole. Without meaning the least offence to the parties urging on this change, we must say that their plan is preposterous to a degree, and anything but a kindness to the parties intended to be benefited. What we contend for is this—that entirely distinct buildings should be provided for this minimum pay-patient class. This is what is being accomplished in America, a country which, as regards its progress in the treatment of insanity is rapidly gaining ground. In England a move in this right direction is going on, indeed has been accomplished in part by the establishment of the Caton Hill Asylum at Stafford, for the accommodation of patients at a reduced scale of payment. Before the erection of this excellent institution patients of the class to whom it gives refuge and every reasonable comfort were received into the County Asylum at Stafford; but, owing to this promiscuous and ill-assorted combination of inmates, and its accruing evils, the plan, however well intended, had to be abandoned, and an effort made, happily with effect, to open an intermediate asylum, which is affording every satisfaction. Let this be done in Ireland, and a great boon and desideratum will be secured. We recommend its consideration strenuously to the Government, and sure are we that public opinion will go with them to the utmost in carrying out some such plan. In the meantime, let it not be said that that class of patients is debarred from proper care and treatment. No such thing. They have been always eligible for admission into the district asylums, the rule in them being this—that when the friends of patients a degree above the "poor" class cannot compass the lowest rate of board of a private asylum, they come properly under the denomination of "poor" persons, and are admitted accordingly.

To conclude our remarks on "No. 2" Bill, it had no better fate than "No. 1;" for, after undergoing varied amendments in

Committee, it came out of that severe ordeal so entirely transformed that it was withdrawn, the Government promising during the recess "to appoint a Commission to institute an inquiry with respect to asylums in Ireland, in order that upon their Report a Bill should be founded which would be introduced the next session of Parliament." This, then, was the state of matters up to the middle of July last, when all further proceedings in the House of Commons with regard to Irish lunatic asylums were considered at an end for the session. But, to the surprise of all, a Bill was introduced at the instance of the member for the city of Londonderry, for the granting of superannuation allowances; it was, *verbatim et literatim*, the Government pension clause in No. 2 Bill, being one of the few in it which went through the ordeal of Committee without any debate, or any objection being made to its principle,—in fact, all parties immediately concerned, both within the House and without, admitted its general justness. In its new shape as a substantial Bill, it was read a first and second time as a matter of course, passed through Committee, and was reported without any amendment: this occurred on the 19th of July, and its third reading was fixed for the 21st following. On that occasion, Sir Robert Ferguson, its introducer, moved certain amendments which no party at a distance knew anything of, or could possibly know, from the short notice given. Those amendments were moved and adopted, no debate arising thereon. The Bill was then hurried on in its several stages through the Upper House, was passed there *sub silentio*, and on the 29th of July received the royal assent. This Act, 19 and 20 Vict. cap. 99, on reaching Ireland, was, for the first time, found to be totally different to what it was as a Bill up to the period of its passing through Committee. The amendments, suddenly and so unusually brought forward on its third reading, made it a new affair altogether, by basing the superannuations on the obnoxious Civil Service Compensation Act (4 and 5 Will. IV. cap. 24), thus proving to be a means of decreasing the already miserably low salaries and wages of the officers and servants of asylums in the proportions of 5 per cent. and $2\frac{1}{2}$ per cent., respectively, for a superanuation fund from which few, if any, would or could receive a single farthing in return, and, even if they did, the amount would be so paltry as to be more a mockery than a supporting pension. For instance, according to its provisions, it would require a service of ten, and under seventeen years, to enable a party to put in a claim for three-twelfths of his salary and emoluments, or wages, as the case might be. For seventeen years' service and upwards, and

under twenty-four years, four-twelfths, a twelfth being added for every additional seven years until the maximum of two-thirds of the income would be reached, more than which could not be obtained, and this only after forty-five years' service, during all of which time the above heavy percentages had been paying; so that, if a party died in the meantime, or gave up his situation before reaching the minimum period of service, viz., ten years, all his heavy payments would have gone for nothing.

4. Having disposed of the above two Bills and Act, we next come to take a rapid glance at the Parliamentary Return containing the Report of the Commissioners appointed to inquire into the erection of District Lunatic Asylums in Ireland.

The Commission authorized a local inspection of each of the asylums built by the Board of Public Works, to determine whether any useless and unnecessary expense had been incurred in giving accommodation to a definite number of patients in each asylum, having reference to the site and the materials for building available in each locality, and whether the materials and workmanship had been sound and creditable. The Commissioners were empowered to take *vivâ voce* evidence, and to receive any written statements that might be offered by any party or parties interested; the result to be reported to the Lords of the Treasury. It may be here stated, that the issuing of this Commission arose from the remonstrances of several of the local boards of governors, especially the Governors of the Cork Asylum, against the arbitrary proceedings of the Board of Public Works, and the imperfect manner in which the contractors, under their sole control and authority, built the new asylums, notwithstanding the lavish hand with which money was spent in their erection. No one could deny that the complaints thus made were well founded; and when it is considered that the expenditure incurred fell entirely on the rate-payers, it was monstrous, in our judgment, that the local authorities should thus have been the merest ciphers in the hands of an autocratic body, which her Majesty's Commissioners of the Board of Public Works in Ireland assume to be. This Commission, however, proved that there was a power higher than the Board—that public opinion was omnipotent when roused into action, as in this instance.

We now come to the Report of the Commissioners, from which we collect that they inspected twelve of the district asylums in all; the time devoted in doing so extending over a

period of less than four weeks, from 31st of August to 24th of September. The establishments visited, and in the following order, were Belfast, Londonderry, Omagh, Sligo, Ballinasloe, Limerick, Killarney, Cork, Clonmel, Kilkenny, Mullingar, and the Richmond. The Commissioners make due acknowledgment of the frank and unreserved conduct of all the parties concerned, who had in every way assisted their inquiries, and afforded them the fullest information. They make the following statement of the district hospitals for the insane as a whole, which, as coming from so well qualified a source, is exceedingly gratifying, and highly to the honour of these institutions, as well as largely redounding to the humanity of our country:—

"We cannot enter upon the details of our Report without emphatically noticing the great advance made in the interests of humanity, of late years, in Ireland, by the erection of the new Asylums, whereby the sad condition of the insane poor has been so materially alleviated, and additional provision made for the care and treatment of more than 2500 patients, at a cost (as appears by the annexed Table), of upwards of £340,000. There has been an earnest co-operation on the part of the Government authorities, of the officers of the Board of Works, and, in many instances, of the governors and officers of the asylums, in effecting this. Ample and convenient sites have generally been purchased, on healthy, elevated positions, and commanding views of the most beautiful scenery. Due care and attention have been paid in selecting the most favourable aspects. A pleasing and not necessarily expensive style of architecture has been adopted, and carried out in a manner highly creditable to the architects engaged, and ornamental to the country. The accommodation has been generally complete, being founded upon some instructions carefully drawn up by the officers of the Board of Works, who have examined the English asylums, compared their working details, and studied the instructions to architects drawn out by the English Commissioners in Lunacy, of whose experience they have largely availed themselves."

With regard to remissions for excessive expenditure by the Board of Works, the Cork Asylum authorities sought a reduction to the large amount of £15,176 5*s.* 4*d.* for unnecessary expenditure, which, however, was cut down by the Commissioners to £6013. To Sligo a remission of £3000 was allowed; Killarney, £1455, and Mullingar, £1715. No remission was made in the expenditure incurred in any of the other institutions, but several deficiencies and defects in nearly all were directed to be made good at the charge of the Treasury. The

Commissioners, we are glad to see, condemned in strong terms the general system in practice of raising water for the supply of the establishments by means of the labour of the patients, the resident physicians also coinciding entirely with their views, on medical and other grounds. The plan recommended to be adopted was steam or horse-power. Another condemnation also made by them in all the asylums was the "disgusting" water-closet arrangements of the Board of Works, which were, without exception, a cause of complaint in each establishment. Their entire removal was advised, and is accordingly to be carried out, by replacing them with self-acting closets, now in general use in England. Other serious inconveniences are to be also remedied, such as the sashes made of metal, which the Commissioners state were universally complained of as being both unsafe, and not admitting sufficient air for the free ventilation of the building. The recommendation on this latter important matter in the sanitary state of the institutions is, that the—

"Movable iron frame should be fixed, and the glass removed, and a glazed wooden sash, corresponding to it, should be hung on the inside by means of hinges, and fastened by a small spring catch and key; and that the double-action sash should be permanently fixed, and part of the glass removed, and a glazed wooden sash added."

Another most essential point of detail in the comfort, and for the health of the patients, referred to by the Commissioners in their general Report is in regard to heating, which, in all the newly erected asylums, and in those older that have been enlarged, is confined to open fire-places alone. On this head the Commissioners say:—

"Fire-places are not sufficient for insane patients, many of whom have a very torpid circulation; and very frequently the fire-places are placed in the outer walls of the corridors, whereby a great degree of heat is lost; and the warmth would be much increased if the fire-places and their flues were inserted in their inner walls. In one only of the asylums visited by us was an artificial system of heating by pipes adopted, namely, at Londonderry, and which had been only partially successful. We think that the sanitary condition of the patients would be considerably improved if there could be some general system of distributing warmth throughout *all the rooms and corridors* occupied by the patients. This was intended to have been done at Cork, but was ultimately abandoned."

In this opinion of the Commissioners we entirely concur,

and in a former annual "Review on Insanity and Hospitals for the Insane" we advocated the necessity of a precisely similar system being pursued[a]. The Board of Public Works, however, in this as well as in other matters, have been exceedingly arbitrary, and, following out some crotchets of their own, have taken upon themselves to confine the system of heating to open fire-places alone, to the serious and permanent discomfort, if not absolute injury of the health of the inmates of our public asylums, and which has now so justly brought down upon them the above rebuke of men who in this matter especially, not to mention others, have shown themselves thoroughly acquainted with their duties, and equally independent in fulfilling them in a straightforward manner. If there be one matter of more importance than another, in connexion with the comfort and health of numbers of human beings collected together, it is that of a perfect system of ventilation being in existence; but unhappily, and notwithstanding our state of advance in progressive social improvements in other respects, we are still miserably deficient in this most essential one. Our asylums, unfortunately, are not exempt from imperfection in this respect. On this head the Commissioners report:—

"With respect to ventilation, it is generally effected by flues carried up the walls into the roof; but in some instances, as at Cork, Killarney, &c., they are discharged into a horizonal shaft in the roof, which delivers the vitiated air into vertical shafts, specially prepared in connexion with the flue of the boiler for the hot water intended for the baths, &c., on the uppermost floor. But we found that this boiler, on which the system depends, is rarely in operation more than once a week, sometimes less frequently; and that, from some cause or other, it does not act with full effect to produce the contemplated draught in the foul air shaft. Openings are sometimes made from the day rooms, dormitories, and single rooms into the corridors, but they have not always acted well, and generally the apertures are too small. At Killarney and Kilkenny the action was satisfactory; in others we could not discover any. Hence the single rooms and dormitories become intolerable at night, producing profuse perspiration in the patients, a sense of suffocation, and concentration of that impure air peculiar to the exhalations from insane persons, which must be very prejudicial to their health, and was generally complained of by the medical superintendents, matrons, and attendants as intolerable.

"We found at Cork, that the gratings for the escape of the foul

[a] See vol. xiv., No. 28, N. S., p. 412.

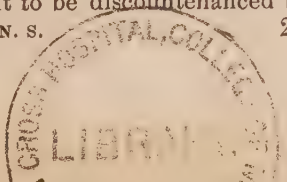
air, judiciously placed near the floor, were quite choked by flock, for want of habitual care in the attendants, and the operation of the flues rendered nugatory."

With reference to single rooms to dormitories, the Report states:—

"The relative proportions of single rooms to dormitories has been departed from in several of the asylums. At Belfast there are only 73 out of 314. The proportion should have been about 100 to 214. At Kilkenny, the numbers are 34 single to 116 in dormitories; they should have been about 50 to 100. At Sligo, one-fifth only are in single rooms, instead of one-third. At Omagh, Mullingar, Killarney, Cork, and Richmond, the proportions are sufficiently near, and the sizes are all correct.

"The proportion of beds in dormitories varies from 3 to 8, and there are generally about 50 superficial feet for each bed. To avoid subsequent overcrowding by an inadvertent departure from the number of beds intended to be placed in each dormitory, the number should be painted over the door."

We are quite satisfied that the dormitory system in vogue and apparently so popular in our asylums is a bad one, and ought to be repressed. We know it to be felt as a great hardship by patients, their being huddled together in such large numbers, as is the regular practice;—the constant entreaty is, "Let me have a bed in a room by myself." For our own part we would make the dormitories the exception to the rule, instead of the single rooms being the exception to the dormitories. The insane have their feelings of delicacy and propriety as well as the sane, and those feelings should not be slighted or systematically violated as they are now-a-days in this important respect in our public asylums. Even the limited number of eight persons sleeping together in the same room is most offensive, and morally as well as physically injurious in manifold ways. The fetor of the atmosphere in the morning, in a room containing eight or ten patients, after the night's exuviæ have been eliminated, is intolerable to a degree, be the ventilation even perfect as it may, which, however, we know, and, as has been stated above, is very far from being the case. It is nothing short of an act of cruelty thus to compel creatures, in their unfortunate and helpless condition, to spend their nights in an atmosphere surcharged with all that is most noxious, and is but ill calculated to improve their moral nature, already with most of them in a sufficiently degraded state. Large dormitories, therefore, ought to be discountenanced by medical su-



perintendents, for on them principally rests the responsibility of their continuance. We would limit the maximum number of those sleeping in the same room to four, a few of which sized dormitories in each gallery would, we admit, be more desirable than otherwise.

The annexed extract with reference to the miserable garret and cellar description of the "furnishings" of the hospitals for the insane, is another just rebuke on the part of the Commissioners—one not solely, we must in candour admit, applicable to the Board of Public Works, if we except their famous suicidal iron bedstead—but also to be shared in by the local authorities, by whom we mean the boards of governors, who for the most part tie up the hands of the resident physicians so screwingly, leaving them little or no discretionary power, that the most ordinary article could not be supplied without their express order, and an express debate thereon. Therefore, let not the resident physicians be blamed for scant and beggarly furnishings:—

"The furniture supplied to the new district asylums is scanty, and of the commonest description; and a too severe economy has evidently been exercised in this respect, and considerable additions are required for the comfort and convenience of the patients. We had occasion generally to remark upon the unsuitable and dangerous description of bedstead which had been supplied to the new asylums, and which, besides being bad in design, were, in many instances, most roughly and imperfectly made. This was especially the case at Mullingar; and several which we examined, and which had not been used, were so faulty, and put together so badly, that pieces were broken off with the greatest ease, and might form very dangerous instruments in the hands of patients. The frame is made of common bar-iron, screwed together with nuts, which can be readily unscrewed by patients, and instances were mentioned in which they had been taken to pieces by them in this way. The bottoms, instead of being of sacking stretched on rods, as is usually the case in English asylums, is formed of laths riveted to the frame, which can be broken out without difficulty, and would form very dangerous weapons in the hands of an insane patient. The laths are also liable to rust, and then iron-mould the bedding, and straw mats have been employed in some asylums to prevent this. The head and foot are formed of sheet-iron, which is easily cracked, and sharp fragments broken off. Projecting from each angle of these, a perpendicular stud, about two and a half inches high, rises, which offers a ready means for a patient hanging himself from it, and suicides have not unfrequently taken place in England from bedsteads offering less obvious means of accomplishing such an object. We consider these bedsteads unsafe, and totally unfit for a lunatic asylum."

We have now touched upon the leading portions of this very interesting and valuable Report, which has been drawn up in such a manner as to reflect great credit upon the Commissioners, Mr. Wilkes (since promoted to be one of the Commissioners in Lunacy), and Mr. Donaldson, who evidently were thoroughly practical men in their respective departments of inquiry.

5. The Parliamentary Return obtained by Mr. Tite, M.P., has nothing professionally interesting in it to call for much notice. It contains, first, a Return showing the total number of lunatics in respect of whom commissions of lunacy are now in force (viz. 551), and of the total amount of their annual incomes, £238,188 for 505, the incomes of the remaining 46 not being ascertained; and the total amount of the sums allowed for their maintenance, £160,163, distributed in individual payments, varying from £100 to £1000 per annum. Secondly, a Return giving the particulars (which we need not quote) of the amounts of percentage of 1 per-cent. paid in each year, from the 8th of January, 1849, to the 8th of January, 1856, on lunatics' incomes, and of the payments made thereon in each year, during the same period, to the account of the Board of Visitors for the better care and treatment of lunatics. Thirdly, a Return relating to criminal lunatics now under confinement in England, according to which there was a total number up to March, 1856, of 591, of whom 569 were confined in county asylums, hospitals, and licensed houses, and 22 in gaols.

6. The Commissioners in Lunacy in their tenth Report state, in the first place, that since their last, two vacancies had occurred in the Commission by the resignation of Dr. Turner, and the death of Mr. Mylne. Dr. Turner has been succeeded by Mr. Wilkes, lately the Medical Superintendent of the Staffordshire Asylum, his able conduct of which, during the many years he presided there as its chief officer, gained for him great and well-deserved praise. His antecedents, accordingly, are such as to leave no doubt that the right man has been put into the right place. The vacancy caused by the death of Mr. Mylne, who was one of the legal members of the Commission, has been filled up by Mr. Lutwidge, formerly the official Secretary to the Commissioners.

According to the tabular statements given in the Report of the numbers of insane persons in the several county asylums, hospitals, metropolitan licensed houses, and licensed

houses in England and Wales, on the 1st of January last, the same were as follows, viz.:—

	Males.	Females.	Total.
In 37 County and Borough Asylums, ...	6298	7525	13823
„ 15 Hospitals, ...	791	837	1628
„ 39 Metropolitan Licensed Houses, ...	1105	1486	2591
„ 83 Provincial Licensed Houses, ...	1386	1215	2601
„ Royal Naval Hospital, ...	121	—	121
	9701	11063	20764

Another tabular statement affords the number of workhouses, and inmates, respectively visited by the Commissioners during the year for the inspection of the insane, idiotic, and imbecile inmates confined therein; from which we learn that the total number of workhouses so visited amounted to 128, and of patients, 2454[a], which, added to the above, would make a total of 23,218 insane of all classes in the sister kingdom.

But this does not appear to be the correct number, as we find the Poor-Law Board in their Report to the 1st January, 1856, state that the number confined at that date in the workhouses of England and Wales was 6480, which is a great discrepancy, for, according to this, so many as 4026 escaped the supervision of the Commissioners, who are specially appointed by Act of Parliament to visit each and every insane inmate within the walls of the workhouses; and most properly and humanely is this provision made, as their visitation is by far of greater importance and necessity than that of the regular county asylums, whose management is in the immediate hands of professional officers of the highest standing and character; while the unfortunate insane poor of various denominations in the Union workhouses, it is to be apprehended, are far from being that object of primary consideration which every feeling of our nature tells us should be actively engaged on their behalf, wherever their lot may be cast. We think, therefore, that the Commissioners should not omit to give an explanation of this matter in their next Report, for, as it at present stands, the impression left on the mind is far from satisfactory.

[a] This total is not brought out in the Table; the individual numbers in each workhouse being only given, and the columns at foot not being summed up, which should have been done.—Rev.

The Report enters into some particulars, showing the steps taken during the past year to provide additional accommodation in sixteen of the county asylums, which, however, does not here call for any particular observation[a]. Complaint is made by the Commissioners of the continued "utterly inadequate accommodation" for the insane paupers belonging to the counties of Glamorgan, Caermarthen, Cardigan, and Pembroke, and a detailed statement is given of an extraordinary attempt made (but happily frustrated) on the part of of the Visitors to select a site for an asylum, for the joint use of the above counties, officially and strongly stated by them to be "a known healthy locality," in consequence of which they "had agreed to give a high price for it;" but which "healthy locality" was subsequently condemned by the Medical Inspector of the Board of Health, who "expressed his decided opinion that Dan-y-Graig near Swansea [the name of the Visitors' 'healthy locality'], on sanitary principles, could not with propriety be approved as a site for a lunatic asylum;" and thus were those considerate Visitors foiled in the apparent job they had so nearly accomplished, in revenge for which, as it would seem, they to the present time have very *humanely* contrived, by a system of "dodging," to keep the unfortunate insane poor of their district in total want of accommodation "of a satisfactory or creditable kind." Under such circumstances, we fully agree with the Commissioners, that, as much more than "sufficient time has been given to the justices of those counties to provide proper accommodation for their insane poor in some *healthy locality* of their extensive district, steps ought to be taken [and we hope have been before this] for the purpose of insuring the same without further delay."

We have to confess our great disappointment at the entire silence on the part of the Commissioners as to the present state of the Norfolk Asylum; all the information afforded of it is, that "three acres of land had been purchased!" Their Report of it last year was of the most unfavourable description, and we felt it our bounden duty to express a strong opinion in regard to its exceedingly discreditable condition, and the absolute necessity there existed of a thorough reform being made in its whole management, commencing with the Visitors, who had allowed judgment to go against them by default, in consequence of their supineness in the discharge of their important

[a] How comes it to pass, we may ask, that no report is made of Hanwell and Colney Hatch Asylums—not even the most distant allusion to two such important metropolitan institutions; and the latter of them, especially, stated in the newspapers recently to be in a dangerous situation, its foundations having given way?—Rev.

duties. Their audacious treatment and unjust removal of Dr. Foote stand to the present time upon record in an unmitigated and unatoned form against them. Their institution is at least a century behind the age; and, from the Commissioners' studied and, we must say, extraordinary silence on the present occasion with regard to it, we are led to infer that no improvement has taken place in its conduct.

Several boroughs, it would appear, have failed to provide asylums for their insane poor, a fact which, the Commissioners state, has been upon several occasions brought under the notice of the Lord Chancellor, but, as in the Norfolk case, to no purpose; and this in the very teeth of the facilities afforded by the Lunatic Asylums Act, 1853. Why, if in Ireland any such neglect occurred, a storm of indignation would soon be raised against us by the sister country, entirely indifferent and careless, as she is officially stated to be, about her own unfortunate insane!

We quite agree with the Commissioners in their statement on this head, that the "importance of compelling the authorities of boroughs to provide a fit residence for their insane poor can scarcely be exaggerated." The absolute cruelty of sending large numbers of those patients "to licensed houses far from their homes, to distances (sometimes exceeding, and often scarcely less than 100 miles), which their relations and friends are unable to travel," is palpable, and ought not to be tolerated an hour longer. And what are the consequences of this barbarous state of things in a Christian land?—"That the poor borough lunatic has been left too often to pass a considerable portion of his life, *and in some cases to die*, far from his home, and without any of his nearest connexions having been able to comfort him by their occasional presence. The visits of his parish officers are necessarily cursory and infrequent, and he is, in fact, cast upon the humanity of strangers, whose prosperity depends upon the profits which they derive from maintaining him and others of his class." We cannot find space to transcribe still further cruelties and hardships stated by the Commissioners as practised by the boroughs towards their helpless insane poor. It is sickening and disgusting to see such a state of things in the present day, and in humane England too. Five boroughs are specially mentioned by the Commissioners as being guilty of the above extreme cruelty—theirs is an unenviable notoriety—viz.:—Portsmouth, Southampton, Great Yarmouth, Canterbury (an Archbishop's See, too!), and Ipswich. But, like the Norfolk Asylum Visitors, those boroughs also will, as a matter of course, laugh in their sleeve against

law, Lord Chancellor, and Commissioners, and find they can do so with impunity!

St. Luke's Hospital, like the Norfolk Asylum, came in for severe censure in the Commissioners' Report of last year; yet, in the present one we are afforded no positive statement of matters being much improved therein. The Commissioners reproduce, on the present occasion, the official visitation of the Hospital, in February and March, 1855, by three of their body, published by anticipation in last year's Report, part of which we gave in our own review at the time[a]. In addition to this, they merely now state "that copies of the proposed rules for St. Luke's have been transmitted to us by the Secretary of State, are now under serious consideration, and, we trust, will be so modified by the Governors as to produce important and beneficial improvements in this Hospital." How long, we wonder, will this "*serious* consideration" continue?

The wards appropriated to the reception of insane patients in Guy's Hospital come next in for condemnation, owing to their "total unfitness for the reception and treatment of insane patients," and which, it appears, have now, for the fourth time, been reprobated for their inadequacy, in the Reports of the Commissioners. We always had the impression that the endowments of Guy's were large to a degree, so that certainly it cannot be paucity of means which hinders the requisite improvements being made for its unfortunate charge of the insane class. This continued remissness on the part of the authorities of this Hospital speaks very badly for their common humanity.

Norfolk, we think, stands out pre-eminently for notoriety in indifference to the wants of the insane poor. Whether as regards its County Asylum, or its "Bethel Hospital," both are samples of charity being at zero, so far as the comforts of its pauper insane are in question. Bethel Hospital, at Norwich, is again found fault with by the Commissioners "for inconvenience of locality, and unsuitableness of purpose."

With regard to Bethlem Hospital the Commissioners report that "its state generally is represented as being altogether creditable to the medical and other authorities." Its criminal wards, however, are not included in the above commendation, which are reported to be defective, but which is the result of imperfections in the building itself. The Commissioners observe that "this class of the insane imperatively demands the interference of the Legislature," in which opinion we fully concur, and are only astonished that the subject has not long since been taken

[a] Vol. xx., No. 40, N. S., page 32, *et seq.*

up by Parliament, and finally disposed of by the erection of a State asylum in the neighbourhood of London, in the same way as has for many years been in operation for Ireland at Dundrum, near Dublin, and with the best results.

The patients in the Asylum for Idiots at Park House, Highgate, the Commissioners report, were suddenly removed therefrom in October, 1855, without their authority, to a new asylum at Earlsmond, Reigate, and though a correspondence had been commenced on the subject, yet no satisfactory explanation of the matter had been received by them up to the 31st of December last.

The state of several of the provincial licensed houses occupies several pages of the Report, which we cannot dwell upon, further than to state that here again our eye rested on Norfolk as holding a conspicuous place in this category, its "Infirmary Asylum at Norfolk" being in an unsatisfactory condition, and "its furniture, clothing, and general comforts, being inferior to those in the other public establishments in this country."

Towards the close of their Report, the Commissioners, after referring to the insane inmates of the workhouses (to which latter we have made some allusion in the commencement of this notice), allude to the urgent necessity existing for making further provisions for the increased and increasing number of the insane poor, observing that in nearly every county the accommodation in asylums is at present, or shortly will be, inadequate. They accordingly incline, in order to meet this pressing difficulty, to recommend the erection of cheerful, airy apartments in the county asylums, but detached from the main building, for the accommodation of the more quiet, orderly, chronic, and convalescing patients, and associating them with officials engaged in conducting industrial pursuits. They state on this head:—"As a means of treatment we consider this species of separate residence of the utmost importance, constituting in fact, a probationary system for patients who are convalescing." And again:—"That the want of such an intermediate place of residence is always much felt." Further they mention "that commodious rooms contiguous to the farm buildings are now in the course of construction at the Somerset County Asylum, and that there is every reason to believe that the patients will derive benefit by residing in these apartments, which at once possess a domestic character and afford every facility to carry on agricultural pursuits." All we feel called upon now to say on this theory is, that it appears very good on paper, but further than this we are not inclined to go. In their suggestions

to architects, the Commissioners, amongst others, recommend the erection of a third story, which, we must say, we consider highly objectionable.

We have now brought the principal portions of the Commissioners' Report under review; and, in leaving it, cannot but regret that there is too much cause for the remark which we have observed in the Report of the Proceedings of the recent meeting of the Association of Medical Officers of Hospitals for the Insane, as published in the current Number of the Psychological Journal, that there was "a studied avoidance of anything approaching to the medical element in the last Report (the tenth), as well as in the Reports generally of the Commissioners." We are not afforded in its pages any opportunity of judging of the results of treatment in the several asylums, there being no clue given for this by a statement of the recoveries, improvements, deaths, &c., in institutions of so much importance—a want which we have more than once called particular attention to ourselves, and which upon one occasion was in a measure attended to[a]. We regret having to make any observation in the slightest degree to detract from the Commissioners' Reports, which are on the whole valuable documents, and written, we must say, with every appearance of impartiality.

7. We have now before us five consecutive quarterly Numbers, viz., from October, 1855, to October, 1856, of the Asylum Journal of Mental Science, published under the auspices of the Association of Medical Officers of Asylums and Hospitals for the Insane, and edited by Dr. Bucknill, the excellent Physician-Superintendent of the Devon County Asylum. In our last general review we took occasion to mention that the Journal was, for the future, to appear in due quarterly proportions, which it has since regularly done, and, having been promoted to this brevet rank, we congratulate it accordingly, and this all the more cordially, inasmuch as it has obtained this distinction by its own intrinsic merits and steady progress to "mental" perfection. The several Numbers above enumerated we have read with much pleasure and profit, as issued; and we cannot but congratulate the Association in possessing an organ which has already taken so high a place in the current periodical literature of the day, and secured for itself both character and influence, which must tell with immense effect in promotion of the important objects of a not less important body of our profession, whose duties are so delicate and confidential,

[a] See vol. xviii., No. 36, N. S., page 353.

and which they fulfil in a manner so devotedly and ably as to entitle them to hold an exalted place, indeed, amongst their brethren at large, as well as in the social scale. We desire thus to cheer those really noble men in their onward course of unseen, but not the less appreciated usefulness, to offer to them the right hand of good fellowship, and to assure them that they have our heartiest good wishes and earnest desires for increasing success in ministering to the "mind diseased." The unremitting pains and the high order of talent brought to bear by the editor, Dr. Bucknill, in the conduct of the Journal, do him infinite credit; and sure are we that the consciousness of the good he has effected, and is effecting, by labouring, as he has done, in his responsible position, will be an ample reward to him for his valuable labours in so good a cause. His name stands deservedly high amongst the psychological physicians of the day, being second to none for sterling worth and excellence. Having premised this much, we have only further to remark, that the original communications, editorial articles, &c., as each Number appears, are always practical, judicious, and well selected. There is one point, however, upon which we have our doubts as to the wisdom of,—we refer to the several papers being required to be signed with the name or initials of the respective contributors. It is the exception to do so; and bound up as the great WE is with an authority and a prestige inconceivable and unexplainable, we candidly confess that we prefer this method, because it carries more weight with it, and permits a freedom in writing and in the expression of honest opinion. We need not enumerate the particular papers, &c., with which the respective Numbers on our table are enriched; suffice it to say, that they are of that good quality that we hope no member of the profession—we mean the profession generally—denies himself the privilege of reading. It should be on the library table of *every* medical man; this we say confidently, knowing how valuable they will find such a periodical to be in the daily practice of their vocation.

Having thus far agreeably delivered ourselves, we must now shortly allude to some remarks made in the July Number, with reference to the use of tobacco in our public hospitals for the insane, in which we ourselves are taken to task for calling in question the utility of that "noisome weed." We quote the pasage as it appears in full:—

"An item in the Kilkenny Asylum we are really glad to observe, namely £23 3*s.* for tobacco and snuff. It may be very foolish and even wrong for poor people to permit themselves to acquire the habit of indulgence in t' ap luxuries, but when the habit of smoking

or snuffing has been acquired by a poor man, it does appear to us a step of unnecessary severity, when he becomes insane, to check a habit which has become an appetite, and often sticks more close to his nature than his natural desires and wants. A superintendent who deprives his patients of the enjoyment afforded by those vulgar luxuries inflicts upon them an amount of suffering of which, if he have no little vices and self-indulgences of his own, he can form no idea. Let him, however, try upon himself a temporary abstinence from tea, coffee, condiments, sauces, and such like luxuries, not more unnecessary, and not less harmless than that which he calls the noisome weed, and he will be able to arrive at some faint idea of the privation which he inflicts upon others. If this is not sufficient, let him endeavour to measure the degree of privation by the expressions of men who have been compelled to bear it, and who have been able to describe it; let him remember that the much-enduring dweller in dungeons, Baron Trenck, has recorded the fact, that of all the sufferings which tyranny was able to heap upon him, the deprivation of snuff was the greatest."

"We have been led to make these observations in consequence of the counterblast on tobacco which a psychological reviewer of authority and experience has made on several occasions in the pages of the Dublin Medical Quarterly. We sincerely hope that this theoretical antipathy to the weed will not be able to deprive poor mad Pat of his darling dudeen, the moderate enjoyment of which will certainly do his mazed brain no harm, while it will as certainly contribute to his satisfaction and comfort."

Now in sober sadness; and more in sorrow than in anger, we cannot but feel surprised at our worthy contemporary thus expressing himself, and making so extraordinary and uncalled-for an onslaught upon our humble selves, for deprecating those institutions which countenance the noisome weed, as we choose to call tobacco in *all* its vile and injurious forms. Surely he is not in earnest when he says it is "unnecessary severity to check a habit which has become an appetite?" Would our learned and tobacco-patronizing friend allow opium-eating and whisky-drinking to the insane because they had *indulged* in them previous to their admission into the asylum? On what grounds, we respectfully ask him, does he base his—to us most extraordinary—assertion, that the use of the vile weed will do "no harm." Does it produce no ill effect on the nervous system? Does not its habitual use tend to debase and degrade its unhappy slaves? For his information on those subjects we beg to direct his attention to some observations on its use, published in this Journal from the German of Siebert, "On the Poisonous Effects of Cigar-smoking"[a], the perusal of which, we trust, will

[a] See vol. xx., No. 40, N. S., page 477.

bring conviction to his mind, that it is "very foolish, and even wrong, to permit the habit of indulgence in those cheap luxuries." We would also remind him, that within the last month or two the Commander-in-chief has issued an order to the colonels of all the regiments in the Queen's service to prevent tobacco and cigar-smoking amongst both men and officers, to so destructive an extent had its use grown. We may also tell him that we knew an insane patient who was a complete slave to the pipe, but which we induced him to give up altogether, and instead of his feeling it an "unnecessary severity," he frequently afterwards thanked us for the great service we had rendered him. This was only one of many similar instances. We hope to live to see the day when tobacco, and all its attending abominations, will be as effectually banished from our hospitals for the insane, and its use considered as great a disgrace, as iron chains, the lash, and such like *insane luxuries* of the past century.

In the Number for the current quarter is a lengthy poetical effusion, occupying thirty-one pages, under the head of "Insane Literature." Whether so much valuable space should have been occupied with this description of bagatelle, we consider more than problematical. There may be much wit and point scattered through it, if time could be spared to study its contents and find them out, which, however, we cannot do on the present occasion: but, clothed in such a garb, we fear that both will pass unnoticed. A report of the annual meeting of the Association at Derby, in July last, is now given, and of the subsequent anniversary dinner, presided over by Dr. Hitchman, Physician to the Derby Asylum, whose eloquent speeches are fully reported. Reviews, and other interesting matters, complete the contents of the Number. We were much disappointed, we must confess, at seeing no notice whatever taken in a Journal like this, devoted to a specialty, and the organ of the Association, of the result of Mr. Snape's case at the Surrey Asylum.

8. The Report of the Pennsylvania Hospital for the Insane, for the year 1855, drawn up by its eminent Physician-Superintendent, Dr. Thomas S. Kirkbride, is a voluminous and valuable document. The admirable statistical Tables incorporated in this Report afford much information as regards the classes in society whence patients have been sent to the institution, their respective ages, duration of the disease, the number of attacks, &c., all of which are highly important and suggestive to the practical student. We note, too, with much pleasure, the unusually high average of patients discharged as

cured or *much improved*, during the year, from this establishment. The Table is as follows:—

Cured, ...	101
Much improved, ...	13
Improved, ...	23
Stationary, ...	11
Died, ...	21
	169

The above proportion, out of an hospital containing an average for the year of 399 patients, is certainly a most creditable result; nor can we omit to notice, in connexion with the same, what we must believe to have been some at least of the effective means of recovery had recourse to, viz., the "evening entertainments," together with the "museum and reading-rooms" mentioned in Dr. Kirkbride's Report. We are only able, at present, to take this cursory glance at its contents, and with them to express our entire satisfaction.

9. The Annual Report of the Belfast District Hospital for the Insane, up to the 31st March last, by Dr. Stewart, is largely occupied with the conclusion of the proceedings in connexion with the appointment of chaplains to that institution, by the Lord Lieutenant. The result, after the most protracted litigation, of years' duration, is now on record by the *unanimous* decision of the Court of Queen's Bench in Ireland, in January last, being pronounced against the validity of those appointments by the prerogative of the Crown: consequently, they, as a matter of course, fell to the ground; the whole proceedings of the Board of Governors and of the Grand Juries of the district, in opposition thereto, being upheld by the Judges. As we have repeatedly, in the course of these annual reviews, given our unbiassed opinion upon this question, in its professional bearings, it is unnecessary for us on the present occasion to say more in regard to it, than that the result is eminently satisfactory, and very creditable to the sterling independence of our Judges, and perseverance of the Governors, respectively.

The Table of cases under treatment during the year, which amounted to 390 (206 males and 184 females), shows that 49 (19 males and 30 females) were discharged recovered; 14 (5 males, 9 females) were relieved; 1 (a male) escaped, who, however, only anticipated his discharge a little while, being convalescent at the time; and 19 (12 males, 7 females) died during the year: leaving in the Hospital, on the 31st of March last,

307 (169 males, and 138 females). 4 of the deaths arose from dysentery and diarrhœa; 3 from general debility; 3 from pulmonary affections; 2 from paralysis; 2 from scrofulous disease; 1 each from epilepsy, apoplexy, and psoas abscess; and 1, a male, died by his own hands, having hanged himself in a very deliberate manner, as is almost invariably the case in such unfortunate casualties. A coroner's inquest was held in this instance, which resulted in the attendants in charge being absolved from all blame. So many as 21 of the cases admitted, during the year, were suicidally disposed, 6 of whom, before admission, had made actual attempts on their own lives. The general health of the establishment during the year is stated to have been remarkably good. The total year's expenditure amounted to £5428 13*s.* 9*d.*, making the average cost of each patient so moderate as £18 11*s.* 10½*d.* The net profit of the produce of the farm and garden was £349 5*s.* 4*d.*

Reference is made to the official visitation of the institution last year by the Commissioners appointed by the Treasury to inquire into the erection of district asylums in Ireland, whose Report to the Treasury we have already specially noticed, and, therefore, need not now further refer to. The new buildings, commenced so far back as the year 1852, and which should have been completed during the following year, were not, however, in sufficient readiness for the partial reception of patients until August, 1855, and at the date of the Report, 31st March last, were not even then fully completed. The additional accommodation provided had already been nearly used up, there being but few vacancies remaining. The total capabilities of the house are now, it appears, at the utmost, 330, though considered by the Commissioners of Inquiry but calculated to hold 314 in the aggregate. The Report refers to the suggestion made by the Inspectors in their last Parliamentary Report—for the transference of the chronic insane and idiotic cases in the Union workhouses to the district asylums as being very objectionable, and in which we fully concur; our reasons for doing so we need not here repeat, having already more than once fully stated our views on that head[a]. We are pleased to find that medical students are now enabled to attend the practice of the asylum, regulations to that effect having been made by the Board. This is only as it should be, and is a step in the right direction, one which was taken many years ago in the Hanwell Asylum, when Dr. Conolly was its eminent Resident Physician, and since then by Bethlem Hospital, the

[a] Vol. xii., N. S., p. 382, and vol. xx., No. 40, N. S., p. 346.

Surrey Asylum, &c. The death of Dr. Mulholland, the former attending surgeon of the institution for a series of years, is stated in the Report to have occurred last year, and a just tribute is paid to his memory as a very efficient and much regretted officer. The vacancy thus caused has been filled up by the Board's appointment of Dr. Moore, a selection which has met with much approval, the position and character he holds in his profession and before the public being both, respectively, of a high order.

10. The five quarterly Parts of the Journal of Psychological Medicine and Mental Pathology for October, 1855, and the current year complete, in its new and enlarged form, are before us, and quite attain to its former well-earned and deserved reputation.

It would evidently be impossible to bring within the compass of our review anything like even an adequate *resumè* of the various matters connected with psychological science, presented in this excellent periodical by its accomplished editor, Dr. Forbes Winslow,—a glance at the contents of the several Parts must suffice on the present occasion.

Under the head of Statistics and Information, much that is valuable and of interest will be found in "Notes of a Visit to the Public Lunatic Asylums of Scotland," by John Webster, M. D., F. R. S., &c. &c., who in some former Numbers of the same Journal gave to its readers an account of his visits to the asylums for the insane in France. From the view here given of the asylums of Scotland, as well, indeed, as from our own notices of three of them, it is apparent that the management and treatment of the insane, in the northern portion of the sister island, have progressed to a very desirable point. The paper in No. 2, on "Moral and Criminal Epidemics," and those by Mr. Dunn on "Physiological Psychology," being at once highly scientific and strictly and practically professional, will be read with more than ordinary interest by those who are engaged in the treatment of the insane. The articles on the war and peace are more discursive, and we are rather in doubt whether they (and especially the former), though both exceedingly interesting and well written papers, come strictly within the range of a purely professional periodical like the Journal before us.

In the Number for July we were particularly struck with some observations referring to the Commissioners in Lunacy, requiring the proprietors of all private asylums "to keep at their respective establishments, for the inspection of the Com-

missioners at the time of their visitation, a list of the patients under care and treatment, *stating exactly the amount paid for their board and maintenance*"! Is it come to this, that a public body of men—her Majesty's Commissioners in Lunacy—are to employ themselves as such to prostitute their exalted office by a system of mean espionage of the above description, having no connexion whatever with the official duties intrusted to them to discharge? The opinion we had formed of the Commissioners would never have led us to suppose for a moment that so great a meanness could ever have entered into their deliberations, or been thought of even by the most crotchetty and exacting of their body.

The issue of the Journal for the current quarter is, like its predecessors, replete with valuable matter; its "Psychological Quarterly Retrospect" is a double one on this occasion, to make up for none last quarter, and is varied as usual. The first subject it touches upon is "the state of the brain in old age," connected with which the names of Tommy Moore, Rogers (his companion), and Sir William Hamilton, are introduced, and graphic notices supplied of each; then follows a singular case of suicide; murder under the influence of a dream; homicidal insanity; traffic in women; have animals souls? animal instincts; intelligence of animals; manslaughter or murder? public executions; capital punishment; severity of punishment; the last hangman; the last gibbet; statistics of crime; are criminal lunatics responsible? new test of criminal responsibility; voluntarily induced insanity; self-induced insanity. That the above enumeration contains the fullest variety of topics, and to satisfy the greatest diversity of tastes, will not, we are sure, admit of a doubt.

We are gratified to find in this Number a valuable article on our own hospitals for the insane. We had already in type ourselves a notice on the subjects of which it treats, as will be seen at the commencement of our present review, so that we need say nothing further on that head. In reading the full and interesting report of the proceedings of the Association of Medical Officers of Hospitals for the Insane, we regretted to see what struck us as something very much akin to toadyism, and quite out of place for a scientific and independent body of men—we refer to the time and attention of the meeting being taken up in sounding the praises of a legal member of a public Board, by passing a fulsome vote of "congratulation" to him in consequence of his elevation. This, we must say, was undignified in every sense. The individual himself is a perfect stranger to us, so that our only feeling in the matter is one

of principle, and our sincere desire to see so important an Association maintaining its own place and position, neither courting the smiles nor fearing the frown of any official. We must not omit to state our high gratification at the result of Mr. Snape's case, as stated in this Number, which we do without expressing any opinion *pro* or *con* as to the merits of the question in which he was so unhappily involved. And here we feel it our bounden duty to enter our protest, in all earnestness, against any man's character being placed in jeopardy by proceedings being taken against him on an *anonymous* charge, as in this instance of Mr. Snape. No man holding a public appointment would be a day safe were such a malicious, un-English, and degrading line of procedure tolerated on the part of a public Board.

11. The Sixteenth Annual Report of the Crichton Royal Institution for the Insane is ably drawn up, as usual. The statistics are well-arranged and lucidly given. The classification of disease, and the nosological portion, generally, are from a thoroughly practised hand, and the entire reflects the highest credit on the Resident Physician, Dr. W. A. F. Browne. The details are almost exclusively of a pathological kind, and will be read with proportionate interest by professional persons. The number under treatment during the year was 394; the recoveries amounted to 54; those improved, to 13; and the deaths to 14; leaving under treatment at the end of the year 313. The sexes are not stated in this general Table in the Report, which we consider would be desirable. Neither is there any information given respecting the expenditure.

12. Dr. Thurnam's Fifth Annual Report of the Wilts Asylum at Devizes contains elaborate statistics and other full particulars of the workings of that well-conducted institution, which had under treatment during the year 407 patients, 197 males and 210 females, which are thus accounted for, viz:—

	M.	F.	Total.
Discharged recovered, ...	31	27	58
,, relieved, ...	4	2	6
Died, ...	21	21	42
Remaining under treatment Dec. 31, 1855 . .	141	160	301

The month in which the greatest number of admissions occurred was in August, when 29 were received; and the fewest in December, 2 only. Regarding the degree of education of

the 103 new admissions of the year, so many as 56 could read and write, 19 could read, 20 could neither read nor write. As to the social state of the 103 admitted, 50 were unmarried, 42 married, and 11 widowers. The causes of death were—6 each of erysipelas and inflammation of the lungs, 3 each of phthisis, apoplexy, paralysis, epilepsy, chronic disease of heart and lungs, inflammation of the lungs and pleuræ, and exhaustion; 1 each of diarrhœa, general paralysis, chronic inflammation of brain, medullary tumour of brain, inflammation of the lungs and bronchi, dysphagia, gastritis, peritonitis, and carbuncle. The amount of work done during the year is tabulated with much minuteness, and the quantity executed was very considerable and varied. The dietary for patients is as follows:—Breakfast for males, 6 oz. of bread, ½ oz. of butter, and 1 pint of coffee (made thus, coffee, ½ oz., sugar, ⅔ oz., milk, 2 oz. to 1 pint), and the same for females, with 1 oz. less of bread. The quantity of bread allowed is, we consider, very scant for both males and females. Dinner for males three days in the week, 5½ oz. cooked meat without bone; vegetables, 8 oz.; bread, 4 oz.; beer, ⅓ qt.:—ditto, one day in the week, rice pudding, 16 oz.; 1½ pint soup:—ditto, four days in the week, 3 oz. meat stew; vegetables, 8 oz.; suet pudding, 16 oz., with bread and beer each day as above. Ditto, for females, the same as for males, only in slightly reduced quantity. Supper for males, bread, 4 oz.; cheese, 2 oz.; beer, ⅓ qt., or 1 pint of porridge. Ditto, females, bread, the same; butter, ½ oz.; beer, ½ pint, or 1 pint of porridge. Extra diet is allowed to the working patients, together with "*tobacco and snuff as indulgences*," for which latter something less pernicious might easily be substituted, and, we hope, will be by Dr. Thurnam. Dietary for servants—Men, 1½ lb. bread, 1 lb. cooked meat with the bones, ¾ lb. vegetables, 1 pint coffee, 3 pints beer, ½ pint milk, daily; 1 oz. tea, 4 oz. sugar, 8 oz. butter, per week. The tea and sugar supplies are wretchedly small. Women, 1 lb. bread, ¾ lb. cooked meat, ¾ lb. vegetables, 2 pints beer, ½ pint milk, daily; tea, sugar, and butter, same as for men. The total payments during the year amounted to £7913 10*s.* 2¾*d.*, and embraced in this expenditure was the large sum of £46 0*s.* 4*d.* for tobacco, tobacco pipes, and snuff! Dr. Thurnam refers in his Report to the circumstance of two of the patients having escaped during the year, and states that the use of a steam whistle has been found useful in giving an immediate alarm in the neighbourhood of the Asylum; but we question much the propriety of this expedient, which, to the timid and nervous amongst the general population outside the Asylum, might

cause a very injurious degree of terror at the idea of an escaped maniac being amongst them. The completion of the escape, we conceive, would be a much less evil, but which, in nine cases out of ten, is, after all, of little comparative moment. Escapes, like suicides, will occur, be the means used perfect as they may. It only surprises us how infrequent both are, all things considered.

13. The Aberdeen Asylum Report, as last issued and drawn up by its Physician-Superintendent, Dr. Jamieson, presents a very favourable state of that institution, which has always borne a high character in common with the other institutions for the insane in Scotland. Dr. Jamieson confines himself to a simple statement of facts in his practical Report, from which we learn that "the inmates under care and treatment at the commencement of the year were 278 (129 males, 149 females), and at its conclusion 279 (138 males, 141 females). The average number during the period was 274. 9 patients died (3 males, 6 females); 31 (13 males, 18 females), were dismissed completely recovered; and 20 others (6 males, 14 females) removed in various conditions of improvement." He also observes that "the most characteristic feature [and a very satisfactory one too] in the medical history of the year, is the small proportion of deaths in relation to the cases treated." Further, Dr. Jamieson remarks :—"No epidemic has affected the patients. One case of scarlatina occurred in a servant of the house, and was immediately removed before occasioning the infection of any other inmate." He makes reference to the hospital having been visited by Dr. John Webster, of London, "well known by his writings on lunacy matters," and also by the Scotch Lunacy Commission appointed by Government to inquire into the condition of the public and private asylums of Scotland.

The expenditure incurred during the year amounted to £5237 11*s.* 2*d.* We congratulate Dr. Jamieson on the harmonious movements of the institution he so effectively and humanely presides over.

14. Amongst the resident medical superintendents of public hospitals for the insane in England, none more laboriously or faithfully fulfils his important and anxious duties as such than Mr. Ley, of the Oxford and Berks County Asylum at Littlemore, whose Annual Report of that institution, for the past year, is now before us, and the pages of which we have read with pleasure.

We are sorry, however, to find that he still countenances, amongst his otherwise scientifically treated patients, the use of tobacco and snuff, upon which the sum of £47 13*s.* 5*d.* was wasted last year. Could not Mr. Ley, so fertile in resources, as no doubt he is, find out some better and less injurious way of *indulging* those intrusted to his charge? We commend the subject, accordingly, to his best consideration. Having touched upon expenditure at all, we may dismiss that part of our notice of Mr. Ley's Report by stating, that the payments made in support of the Asylum were, in the gross, £11,931 2*s.* 11*d.*—an outlay which is quite sufficient to prove that the poor inmates were not stinted in means to obtain for them all reasonable comforts. Great embarrassment in the conduct of the Asylum has been experienced, owing to the presence so continually of tradesmen, which we know to be a most serious drawback to the comfortable working of an institution so peculiarly circumstanced as an establishment for the insane.

"The progress of ten years has doubled the size of the Littlemore Asylum. Its enlargements have been so constantly in hands, that it cannot be said to have been completed when the contractors for additional buildings have come upon the premises. It is useless to say that the restrictions of the liberties of the patients have not been increased, or that all the views entertained at the opening of the Asylum have been fulfilled."

The following is a summary of the admissions, &c., of patients during the year 1855:—

	M.	F.	Total.
Remaining in the house December 31, 1854,	174	235	409
Admitted in the year 1855, ...	42	60	102
	216	295	511
Discharged on recovery, ...	19	27	46
„ relieved, ...	3	0	3
„ not relieved, and absent on leave,	3	1	4
Died, ...	26	19	45
Total, . .	51	47	98
Remaining under treatment Dec. 31, 1855 .	165	248	413

The Tables in the Report are very complete; but we regret we cannot afford space to draw upon their interesting contents.

15. The Eighth Report of Dr. Boyd of the Somerset County Asylum is compiled in a manner which at once evidences that

no amount of pains was spared in making it full and satisfactory, and in no small degree instructive, as all his previous Reports have been, and which so frequently we have had the pleasing duty to speak of in the most favourable terms. Dr. Boyd is another of the physician-superintendents of the sister kingdom whose great ardour in the performance of most anxious and trying duties redounds so greatly to his credit, and entitles him to hold the position he does amongst his *confrères.*

He observes that the number of females has always exceeded that of males (which is generally so), and he accounts for this by the fact of the higher rate of mortality amongst the males. The admissions during the year were larger than usual, amounting to 147 (78 males, 69 females); of whom 24 were discharged recovered (20 males, 4 females); 5 relieved (3 males, 2 females); 2 not improved (1 of each sex). The deaths amongst the new admissions amounted to 25 (15 and 10); thus leaving 81 (39 and 42) remaining at the end of the year of the new admissions merely. Of the whole number under treatment during the year[a], viz., 493 (237 and 256), the discharges of the males were 21, and of the females 16½ per cent.; the mortality of the males 12½, and of the females 8½ per cent.; leaving, of the males, 65½, and of the females, 75 per cent., or 349 (154 and 195) still under treatment at the close of the year.

The total number of deaths, of new and old cases, was 52 (30 males and 22 females); the previous year's mortality was 62. The principal causes of death were inflammatory affections of the brain and lungs, and the greatest mortality was during the winter; but the year preceding, the reverse was the case. "Nearly half the deaths, 14 (15?) males, and 10 females, were of the admissions of the year; 1 male and 2 females died within a week after their admission; 1 female died the same month; two males and 4 females the month following; and 4 males and 2 females the second month after their admission. The length of residence varied in the males from 6 to 2728 days, and in the females from 7 to 2617 days, the average of the males being 708, and of the females 566 days."

The information afforded in Dr. Boyd's Obituary Table is in its usual elaborate style, the fullest particulars being given

[a] We would suggest that a little more succinctness should be observed in giving these data, as we found some difficulty in making out this total, it not being given in this or any other part of the Report at one view, that we could perceive. A "general summary Table" of the results of the year at the commencement, and as is usual in these Reports, would be desirable.—Rev.

of the post-mortem appearances and weight of the various organs, which cannot but be valuable to the psychologist, both for reference and comparison.

Three coroner's inquests occurred during the year, all on male patients: the first was a case of suicide by hanging. The deceased had been only five months in the asylum, and during four of these he attended in the farm-yard to the cows, one of which was accidentally strangled; and in two days after, whilst the attendant had gone for hay, the deceased went into the loft, and there hanged himself. The second inquest was a case of sudden death, whilst the patient was at work on the grounds, when he complained of giddiness, and died instantaneously. In this case the brain was unusally large, which was the only abnormal appearance presented on a post-mortem being held. The third was a case of death arising from shock from a burn, the deceased's clothes having accidentally taken fire, owing to which he was scorched from the shoulders to the ankles, which proved fatal in eighteen hours.

Dr. Boyd appends some very interesting notes to his Report, in reference to the intimate connexion "between insanity and those epidemies which ravaged nations, and destroyed multitudes of the human race—such as the black death, dancing mania, and sweating sickness." He makes the observation that *physical* causes were frequent in the males, who are more subject to diseases of the nervous centres (the brain and spinal cord), which would account for the greater mortality of males than females. *Moral* causes predominated amongst the females, the majority being attacked at an early period of life, when the sympathies are more readily affected. He further states that eminent modern writers on insanity consider the causes to depend primarily on derangement of the digestive functions, and frequently to be connected with tubercular disease of the lungs. We have only left ourselves room to state the expenditure of the year, viz., £8149 0*s.* 3*d.*, and that 399 lbs. of tobacco were consumed during the year, which we much regret, as in all other respects the Somerset Asylum is a model one, under Dr. Boyd's most judicious and able superintendence.

16. According to Dr. Bucknill's Tenth Annual Report of the Devon County Asylum, that institution had under treatment, during the year 1855, 588 cases (260 males, 328 females); 445 of whom remained over from 1854; the difference, 143 (65 males, 68 females), being new cases. The discharges as recovered (80), and improved (6), amounted to 86 (31 males

and 55 females). Of these, 8 relapsed and were readmitted. The mortality during the year amounted to 56 (39 males and 17 females); which was in the ratio of 11·5 to the average number resident; and in that of 9·6 to the total number under treatment. The mortality of the year had been 2·5 per cent. above the average of past years, which did not arise from any epidemic, but occurred partly from the decease of many of the more advanced inmates whose strength had been gradually declining, and partly to a large number of casualties from epilepsy and general paralysis. The latter cause, Dr. Bucknill observes, in some degree accounts for the greater mortality of the males as compared with the females. The causes assigned for the 56 deaths which occurred were as follow[a], viz.:—General paralysis, 9; epilepsy, 8; phthisis, 8; pneumonia, 6; exhaustion, 4; apoplexy, 3; old age, 3; ulceration of bowels, 2; cerebral decay, 2; diarrhœa, 2; dropsy, 2; disease of heart, 1; empyema, 1; enteritis, 1; anthrax, 1; necrosis of femur, 1; erysipelas, 1; suicide (by strangulation), 1. With reference to the case unhappily arising from suicide, Dr. Bucknill makes the following very judicious observations, in the entire scope of which we most fully concur:—

"During the year a death has occurred from suicide. This is the third event of the kind which has occurred since the opening of the institution; and affords an average of one suicide in three years and a half. In this instance the patient (a female) was so determined on self-destruction, that the contrivance of means to attain her purpose appeared to be the sole object of thought. During many months she had made numerous unsuccessful attempts; but at length she eluded the patient watchfulness of the attendants so far as to conceal about her person (so that it could not be discovered when she was undressed) a small piece of stocking and of woollen shawl, with which she contrived to strangle herself during a short interval between the visits of an attendant. It is certain that no amount of vigilance will entirely prevent these painful events. If the propensity continues, an opportunity must at length be found: the most improbable, and apparently insufficient, are resorted to. In one instance a patient cut her throat deeply with a small piece of glass. She slept in a dormitory, and during the night she was frequently seen by an attendant; but while she appeared to be sound asleep she nearly bled to death. Her life was, however, saved. Even an attendant sleeping in the same bed with the patient is not a sure preventive. The father of a patient who had removed him from this asylum, as not chargeable, had him carefully watched by day, and slept in the same bed with him by night: the son, however,

[a] The sexes are not given in the "Obituary."

watched his opportunity, and hung himself while his father was asleep. The use of mechanical restraint will not prevent suicide; for several instances are on record in which patients have contrived to strangle themselves in the sleeves of their strait waistcoats. The entire prevention of self-destruction among the insane must, I fear, be regarded as hopeless."

Dr. Bucknill refers, at some length, in his generally excellent and practical Report, to the inconvenience felt in his institution, in common nearly with all the other public asylums, from "pressure from without," and the want of accommodation. He gives his views as to the best means of providing additional room in the least costly manner, which is that of detached buildings within the walls of the institution, earnestly advocating this "auxiliarating" plan as inexpensive, and affording a useful and important change for patients. But we see great and insuperable objections to any such relief as this being carried out,—one alone of which we think it here sufficient to state, and in which we have been anticipated by Dr. Bucknill himself,—and that is, the impossibility of a proper supervision being exercised by the responsible chief of the institution. Surely he has an abundance of anxiety on his mind (to say nothing of physical labour); even as it is, with his work in his hands, so to speak, and with all his constant personal care, and the knowledge, too, on the part of subordinates that they are so immediately under his eye, abuses and neglects of duty occur; and how much would not such great evils be increased by his presence in a moment being known to be impossible in the "auxiliaries" proposed to be scattered through the grounds? Besides, we must confess, that the tendency to collect together hundreds upon hundreds of the insane, of all classes, in one building (as, after all, would be the case), is one which we greatly regret for the sake of the unfortunate insane themselves, their care and treatment running the risk of deteriorating accordingly. The more the number of patients is increased, so much the more will a mere system of routine be the dominant one. We are strongly of opinion, that to do justice to patients labouring under so serious and afflictive a malady as insanity, the maximum number in an asylum should not exceed 250. But we shall not say more at present on this very important subject; we have only room to record, that we are much pleased with Dr. Bucknill's last paragraph in his Report, respecting the labour and employment of insane patients, the reproducing of which here is not in our power. We observe that the number of patients employed in the Devon Asylum is very large, being so many as 368 out of 478, the

total number in the house. The employments, too, are very varied, which is a great desideratum amongst such a community. The maintenance of the establishment during the year 1855 amounted to £11,922 6*s.* 10*d.*

17. The Third Annual Report of the Worcester Asylum affords much information of the workings of that comparatively new establishment, one which has the advantage of a superintendent physician of much intelligence and zeal, coupled with a considerable amount of practical experience. Dr. Sherlock, the gentleman referred to, besides giving a very copious Report, has, in addition thereto, embodied a varied collection of statistical Tables, amounting in all to twenty, in which we have general results of the year, form of disease, duration of disease, assigned causes of disease, &c., &c., particularized in a manner so minute, as to satisfy any reasonable statistician in such matters. We observe with much pleasure that the visiting justices of this establishment have declined annexing a burial-ground to it. In one of our early reviews on insanity[a], when noticing the First Report of the Wilts Asylum, we took occasion to object to such an adjunct as this to an hospital for the insane, which, for the reasons there stated, we considered to be highly objectionable, and we still continue of the same opinion. The visitors also strongly remonstrate against criminal lunatics being placed in their asylum. This is a great grievance, and should be *unceasingly* pressed upon the proper authorities until it is removed; it was only by continually jogging the memory of "the powers that be" in Ireland that a State asylum was ultimately erected for the above class; and unless the same course be pursued in England, no remedy need be expected. Annexed is a statement of the admissions, &c., of the year:—

	Males.	Females.	Total.
In the hospital December 31, 1854, . . .	104	114	218
Admitted during the year 1855, ...	53	48	101
Total under treatment, . . .	157	162	319

	Males.	Females.	Total.			
Discharged cured, . .	19	19	38			
,, improved, .	7	5	12			
Died, ...	24	15	39			
				50	39	89
Remaining under treatment Dec. 31, 1855,				107	123	230

[a] Vol. xiv., No. 28, N. S., page 413.

The principal causes of death were—general paralysis, 8 (7 males and 1 female); epilepsy, 8 (6 males and 2 females); phthisis, 3 (1 male and 2 females); exhaustion from age, 3 (all females); ditto, from mania, 2 (both males), &c., &c. Dr. Sherlock states that more than 30 per cent. of those admitted had previously made suicidal attempts, but that no accident from a propensity, causing in itself such constant anxiety to the officers of our asylums, had occurred during the year, though several had made frequent efforts to accomplish this object, and that strangulation was the means had recourse to in the majority of the happily fruitless attempts thus made. The financial statement in the Report gives the particulars in full of the expenditure incurred during the year, which amounted to £7478 19*s.* 10*d.* The "cruel kindness" of indulging patients in the pernicious vice of smoking tobacco is not, we are well pleased to see, permitted by Dr. Sherlock in the Worcester Asylum. We hope so good an example will soon be generally practised.

18. The Sligo District Hospital for the Insane is one of the newly opened establishments for the insane poor in Ireland, for the counties of Sligo and Leitrim, which formerly were embraced in the Ballinasloe district. The establishment is calculated to accommodate 250 patients, and is situated about a mile from the town of Sligo, having thirty acres of land attached to it. The institution commenced its operations in March, 1855, under the superintendence of Dr. M'Munn, whose First Report, now before us, does him much credit, it is drawn up with great good sense and judgment, and evidently indicates that the Lord Lieutenant has selected a physician-superintendent in every respect qualified to discharge with effect the duties of his important and responsible position. One of the very first steps taken by the Board of Governors, preparatory to the opening of the institution, shows that they also are men of judgment, discerners of the times, by not interfering with their superintendent in the appointment of the subordinates of the establishment. This augurs well for all parties, and we congratulate Dr. M'Munn that thus *in limine* "paramount authority" has been so very properly vested in his hands.

We quote the following paragraph in this, the First Report of Dr. M'Munn, with much satisfaction:—

"The expenses under the head 'tobacco and snuff' are owing to those patients who, previous to their admission into the asylum,

had been habituated to their use. The consumption of tobacco for some months past has been *greatly reduced*, and the use of snuff *totally given up*."

This is another excellent beginning, and shows how alive Dr. M'Munn is to the real welfare and comfort of his patients. Here is another very sensible paragraph in his Report:—

"Though I consider useful and healthful employment of primary importance in the treatment of the insane, I believe occasional relaxation and recreation a most necessary adjuvant."

From the spirit of this we see plainly that Dr. M'Munn will be no taskmaster amongst his interesting charge, as is the manner of some in a similar position of trust. Musical parties have been frequent as recreations in the Sligo Asylum, and of course with the best effect. Dr. M'Munn makes a modest appeal to the Governors "to allow a small sum for the supply of musical instruments," which we feel assured will be duly responded to. Money expended in this way, instead of in tobacco, and in giving occasional innocent "feasts" to the poor inmates, would ultimate in the best results. We can only further add, that the admissions from March, 1855, to March 31, 1856, were 155 (85 males, 70 females); of these there were discharged, recovered, 18 (9 males and 9 females); ditto, relieved, 11 (8 males and 3 females); ditto, not improved, 2 (1 male and 1 female). The deaths were 11 (8 males and 3 females), which left remaining on the 31st March last, 113 (59 males and 54 females). The expenditure for the same period was £3792 1*s.* 3*d.* Altogether, we have been much pleased with this maiden Report, and in leaving it we wish Dr. M'Munn and his charge every prosperity.

19. The Suffolk County Hospital for the Insane, under the excellent superintendence of Dr. John Kirkman, now for so many years in its charge, presents the usual gratifying results in its operations during the past year. Dr. Kirkman, in his concise and practical Report, makes some pointed observations respecting the all-important matter in an establishment set apart for the treatment of the insane poor as regards attendants, upon whose vigilance and faithfulness necessarily devolve the carrying out of the details of the institution. Those remarks of Dr. Kirkman occur in consequence of some most extraordinary and intermeddling regulations of the Commissioners in Lunacy, adopted apparently for the purpose of insuring the services of none but the best and most efficient

subordinates, but in reality to accomplish the very opposite. The Commissioners, it appears, have a "black book" in their office, in which a record is kept of "all dismissals for misconduct, and the causes thereof," required to be supplied by the respective superintendents. Now, we beg to ask the Commissioners, is not this about the most absurd and mischievous regulation imaginable. No man with the least spark of independence or honourable feeling would condescend to cater to such a Star-chamber proceeding as this, and we hope and trust that the physician-superintendents have not degraded themselves or their office by aiding and assisting the Commissioners in a work so utterly un-English and despicable. A more pernicious or uncalled-for species of espionage could scarcely be imagined; and Dr. Kirkman deserves great praise for showing it up as he has done. Dr. Kirkman has some cautionary and sound remarks, in the scope of which we fully concur, in respect of patients being permitted to take excursions in the open country, not even excepting the so-called *refractory* portion of their number. Embodied in the Report are the particulars of treatment of two interesting cases of much practical worth, and showing the happy results in one of them of the sedative and supporting treatment combined in acute mania.

The total number under treatment during the year amounted to 342 (153 males and 189 females); 261 of whom (111 males and 150 females) remained over from the past year, and 81 (42 males and 39 females) were new admissions; 38 cases (10 males and 28 females) were discharged recovered; 5 ditto (2 males and 3 females) relieved, and 32 (17 males and 15 females) died; leaving under treatment at the end of the year (1855) 267 (124 males and 143 females). The principal causes of death, as stated in the Obituary Table (which, with the other Tables, is well arranged) were "general and senile debility (8), maniacal and gradual exhaustion (8), and epilepsy (8)." There was no epidemic illness during the year, the general health having been uniformly good. The dietary in use appears ample and judiciously varied. The year's expenses for maintenance amounted to £5543 7*s.* 9*d.*; under none of the "heads" of which appears any charge for tobacco.

20. The Twenty-ninth Annual Medical Report of the Royal Perth Hospital for the Insane, drawn up by its Resident Physician, Dr. Lindsay, affords satisfactory evidence of the results for the year, being only such as could be realized under a superintendence of the most zealous and active nature. During the year the new admissions amounted to 39, one-third of

whom were males, and two-thirds females, which was a remarkable disproportion. There remained from the previous year 133 (75 being males and 58 females), being on the other hand singular also, the majority being usually on the side of the females. Of this total under treatment, 172 (88 males and 84 females), the discharges in recoveries were 16 (6 males and 10 females); in removals as improved, 3 (females); and the number of deaths to 7 (4 males and 3 females), a mortality exceedingly low, and speaking well for the salubrity, &c., of this establishment. The causes of the death casualties were, apoplexy, phthisis (each, 2); epilepsy, erysipelas, and paralysis (each, 1). No fiscal information of their institution is ever afforded by the Perth authorities, which we remarked upon before as a serious deficiency, and which we again feel called upon to notice. Concerts, weekly balls, dress balls, pic-nics, pedestrian excursions, carriage drives, athletic games, fêtes champêtres, peace festival ball, visits to town, public exhibitions, &c., &c., form but a small portion of the varied "fun and frolic," which, during the past year, appear to have been the order of the day in this most mirthsomely and not less ably conducted establishment.

21. The several Numbers of the American Journal of Insanity, as enumerated in our heading, we must necessarily be brief in our notice of. The Number for October, 1855, opens with a sketch of the life of Dr. T. Romeyn Beck, of Utica, New York, celebrated in the New and Old World for his standard work on "Medical Jurisprudence," the worth of which may be estimated from the fact that it has already, since its first issue in 1823, passed through five American, one German, and four London editions. Until within a recent period, Dr. Beck was the able editor of the Journal of Insanity, having undertaken that duty after the decease of the late Dr. Brigham, of the New York State Asylum, the founder (in 1844) and first editor of this excellent periodical. Advancing years, and more imperative duties, compelled Dr. Beck to vacate the editorial chair which he so long and effectively filled, still, however, giving the benefit of his aid as one of the Governors of that institution[a]. The second original article in this Number is by Dr. Kellogg, of Canada West, "On the intimate Relation of epidemic physical disease, popular delusion, and insanity—particularly as illustrated by the epidemics of the Middle Ages (viz., Black

[a] Dr. Beck died soon after the publication of this Memoir, viz., in November, 1855, aged 65.

Death, Sweating Sickness, and Dancing Mania), and the epidemic and popular delusions of our own time," which is an extremely interesting paper, and well worth an attentive perusal. The third article, "On the Legal Responsibility of Epileptics," being a translated extract from a Treatise on Epilepsy by Dr. Delasiauve, Physician of the Bicêtre Insane Hospital, Paris, is a contribution of much practical value in medical jurisprudence. The fourth paper has reference to insanity in Canada, founded on the Canadian Census (1855), where it appears "the universal declaration is," as in the Old World also, "that insanity is rapidly increasing," but apparently with little or no foundation. It would seem by the Census that, in Eastern Canada, there is a larger proportion of insane persons than in Western Canada, and that there is a very large preponderance of idiocy in the former province. The total number of lunatics (in which idiots are included) in Eastern Canada, in 1851, was 1733; total population, 890,261; showing 1 in every 513 of the population. In Western Canada the population in the same year was 952,004, with 1069 lunatics and idiots, or only 1 in every 890. The latter province is, again, highly favoured, and, in this respect, "an example to the mother country, by possessing a separate asylum for criminal lunatics"—one, it is stated, of the greatest blessings, perhaps, which could have been conferred on the insane there by the Governor, Sir Edmund Head. The fifth article is a most elaborate one in connexion with an official Report, drawn up by a Commission on Lunacy, by order of the Legislature of 1854, "On Insanity and Idiocy in Massachusetts," with a view to providing additional accommodation for the insane class of that State. The Report is drawn up with extreme accuracy and minuteness, entering into all the details of the several questions involved, in a manner that could not be surpassed for completeness. We can only state some of the conclusions arrived at by the Commission:—First, that not more than 250 patients should "be gathered" into one hospital, and that 200 is a better number. Second, that pay and pauper patients should be provided for in separate establishments. Third, that *criminal lunatics* should be kept separate from ordinary patients. Fourth, that there should not be less than 250 acres of land—certainly not less than 200—for exercise of all kinds for the patients. This Report fully evidences that the most enlightened views are in the ascendant amongst our Transatlantic brethren, in regard to the humane treatment of their insane. The sixth article relates to the ventilation of the State Asylum of Utica, N. Y., and contains much that is valuable on that important subject.

The January issue of the Journal contains, amongst its other practical and well-selected papers, one from the prolific pen of Dr. Ray, "On Insanity and Homicide," and, coming from so able and eminent a man, we need scarcely say that its subject is treated in his usual lucid and practical style. There is no more worthy or thoroughly well-informed practitioner in the specialty of Psychology in all its relations than Dr. Ray, or one who has been more truly humane or successful in his important vocation as a superintendent-physician of the insane.

The Number for April, 1856, amongst other interesting papers, contains a Memoir, from facts contained in the Psychological Journal, of Mr. Tuke, the founder of the York Retreat, which does his memory and philanthropy every justice. A paper in the same number, being a translation from the French of M. Brierre de Boismont, "On Suicide and Suicidal Insanity," is full of interest to the psychologist.

22. We have already incidentally referred to Dr. Webster's pamphlet, the next in order on our present prolonged list, whilst noticing the Psychological Journal, in which its contents were first published, its present form being a reprint therefrom. Dr. Webster holds a high rank both in his profession and before the public, and most justly. He has been a large contributor of valuable practical papers in connexion with the treatment of the insane, all of which display a most benevolent mind and a thorough acquaintance with his subject, as well as an earnest desire to promote the true interests of that class of our fellow-creatures who demand our warmest sympathies, and imperatively require the united aid of all in rendering them the best aid in our power towards the amelioration of their peculiarly helpless condition. That a vast amount of good has been done in this respect by Dr. Webster need not be here stated. We gladly record the fact in our pages, and with sincere pleasure render him the tribute of our warmest commendation, for his persevering and disinterested labours in so gracious a vocation. We would desire greatly to quote *in extenso* his very judicious observations in this reprint, on the "Administration of Asylums;" we can only direct the attention of our readers to them, as well worthy of the best consideration. He strongly urges the necessity of more administrative power being vested in the hands of superintendents, and their remuneration being more liberal than usually prevails;—also, that he ought to exercise *paramount* authority in everything appertaining to the management, and moral, medical, or physical treatment of his patients;—that the physician-superinten-

dent should attend all meetings of committee, without voting, in order to give his opinion generally with reference to patients, and upon any professional questions that might arise, thus preventing all future misunderstandings. This is sound advice, and ought to be acted upon. In fact, where it is not, that institution cannot be in healthy operation; and we ourselves put forth nearly similar views to the above in one of our former annual reviews on insanity[a]. He objects to the *imperium in imperio* system in asylums of 'lady' matrons being in existence in them. We are of the same opinion. They should be entirely subordinate to the superintendent, and be appointed by him, in common with the other secondary officers. The system hitherto prevalent in England and Ireland, of the wives of the superintendents acting in that capacity, ought not to be continued. Formerly, when both offices became vacant at the same time, it was a *sine qua non* that man and wife should hold them jointly; but, as both offices cannot always be vacant together, we would act differently for the time to come, and let the 'lady' matrons give place to housekeepers, who should, under the resident medical superintendent, exercise control over all the female department of the institution. Dr. Webster inclines to the opinion, that there ought to be a consulting physician, and a consulting surgeon, whenever possible, to each asylum, to be called into consultation respectively, at the *discretion* and *request* of the physician or medical superintendent. This has been always our opinion also, and we are glad to have our views confirmed, in this respect, by so high an authority. He also urges the necessity of the physician-superintendent having an assistant medical officer resident in the house. This we consider quite indispensable. He objects *in toto* to asylums being directly or indirectly mixed up, even in lay management, *with any other* institution—in this, also, he shows sound judgment; as well as that there should be no admixture of pauper and pay patients of any degree—another recommendation of his, in which, we need scarcely say, we most heartily concur. In conclusion, we strongly recommend this able *brochure* of Dr. Webster's to the attention of the Commissioners of Hospitals for the Insane in Ireland, and more especially to the members of the new Commission of Inquiry into our Asylums.

23. We only received copies of Dr. Boyd's "Pathological Contributions" as these pages were passing through the press;

[a] Vol. xiv., No. 28, N. S., p. 401.

consequently we can do little more than barely note the receipt thereof. The pamphlets containing these contributions consist of two parts, their contents having been originally published in the Edinburgh Medical and Surgical Journal, and comprise together a number of post-mortem examinations, grouped in Tables, which came under Dr. Boyd's treatment when he was Resident Physician to the Parochial Infirmary, and Physician to the Pauper Lunatic Asylum, St. Marylebone. Those cases first given to the profession extended over a period of three years, and were selected out of a metropolitan population, whose aggregate numbers receiving medical attendance from the institution during that period were not less than 23,000. They embrace post-mortems so far back as 1840, 1841, 1842, of those who died from organic diseases of the brain and spinal cord; and in previous Numbers of the Edinburgh Medical and Surgical Journal were published the like results in those who died from organic diseases of the abdomen and chest during the same years. The more recent communication includes what have been termed the functional diseases of the brain, as convulsions, epilepsy, and insanity, in contradistinction to the organic diseases, inasmuch as, our author observes, "it frequently happens that no structural change whatever is observable in the cerebral system, or any appreciable difference from what is seen in the brains of persons free from those disorders." As has been before observed, "the connexion between symptoms and organic lesions, in cerebral diseases, has ever been one of the utmost difficulty and obscurity." The Contributions, as a whole, contain much that is valuable and interesting to the morbid anatomist, in the pathology of the brain and other organs; and still further evidence the great zeal of Dr. Boyd in this particular department, which for years he had manifested in the metropolis, before changing his sphere of usefulness to his present post of duty, that of Physician-Superintendent to the Somersetshire Hospital for the Insane, for which he had so well qualified himself by his previous studies and untiring industry; an industry which his Reports in his present vocation show plainly has not flagged in the slightest degree. We have only to add, that this reprint of "Contributions" is a valuable addition to the literature of psychology.

Öfversigt af de Bidrag Mikroskopet lemnat till den Medicinska Diagnostiken. Af D:r. Gustaf von Düben. Med Fyratiotre Träsnitt.

A Review of the Contributions yielded by the Microscope to Medical Diagnosis. By Dr. Gustaf von Düben. With Forty-three Woodcuts. Stockholm. 1855. 8vo, pp. 98.

Professor von Düben is already so well known to our readers, his name will be to them a sufficient guarantee that the above most useful work has been compiled with care and accuracy. It presents, in fact, a clear and comprehensive, and, as it were, synoptical view of the various additions which the microscope has, up to the present day, made to our means of diagnosis; these are considered as they relate to the skin, the blood, the milk, and the excretions, the entire being admirably illustrated by means of forty-three woodcuts, neatly executed by Hr. Fr. Kjerrulf.

In the course of his remarks on the presence of foreign matters in the milk, the author says:—

"Cancer-cells have not, so far as I know, been found in the milk; but Bruch relates a case where, in an old woman already past the climacteric years, the pressure of a cancerous tumour in the mammary gland gave rise to the secretion of normal milk and colostrum. I have myself recently, in examining a mammary cancer, extirpated by Dr. Swalin, not only found milk and colostrum in the breast, but also succeeded in verifying, in every respect, Lammerts v. Bueren's views of the formation of the milk."

A subject which the author considers as not having received the attention it deserves, is alluded to in the section on vomicæ and tuberculosis in the following terms:—

"If the practical physician meets with a patient who describes a previous pneumonia, of which his present illness is a consequence, or in whom the physical signs, in agreement with the history of the case and the rational symptoms, disclose the lesion which is developed in the lungs, he has no doubt as to the diagnosis. But if, on the other hand, he be called to a young patient, in whom all other modes of investigation are merely sufficient to establish the existence of a chronic catarrh, the microscope alone can decide whether this catarrh is uncomplicated, or whether tuberculosis lurks behind it. The honour of the discovery of the microscopic sign belongs to Professor Schroeder van der Kolk, of Utrecht, who published

an essay on the subject, which was translated into Swedish by Ehr. Ekströmer, Chir. Magr., and inserted in the Hygiea for 1850, pp. 21–39. Singularly enough, the matter seems to have attracted but little notice, although it is, as I can testify from extensive investigations, of the greatest importance; the positive result has never as yet been disproved by the issue of the case.

"We know from pathological anatomy that in pulmonary catarrh the mucous membrane of the bronchi only is destroyed, and even this but imperfectly, whether the disease has an acute or chronic course. The same is the case with acute pneumonia in process of recovery. In none of these cases can we, therefore, *à priori*, expect to find in the sputa any other elementary parts than those belonging to this membrane, and experience has confirmed this view.

"In pneumonia, on the contrary, which assumes a chronic form, or where, through the formation of pus, destruction of parts of the lung takes place, other portions of the bronchi, besides the mucous membrane, are attacked and are destroyed by the ulcerative process. The same occurs in tuberculosis. In both these cases we may beforehand expect, and afterwards find, in the sputa, fragments of the bronchial walls. The characteristic point in the sputa, from vomicæ, is the presence of the elastic filaments of these walls; they are *never* wanting so soon as a progressive vomica is met with."

A delineation of these filaments is annexed in the original, one specimen having been obtained from a patient who was treated, in the year 1850, in the Seraphim Hospital, for acute bronchitis, and who presented neither general nor physical signs of tuberculosis; the discovery of fragments of elastic pulmonary tissue in the expectoration, however, decided the diagnosis, which was subsequently confirmed on examination at midsummer, 1854, when phthisis was found to be unmistakably developed. "These elastic filaments," adds the author, "are easily distinguished in the sputum from all other formations by their regularly curved, dichotomous, and frequently anastomosing threads of uniform breadth, and well-defined contours, which are rendered more distinct by the addition of acetic acid.

"So soon as these elastic filaments are found in the sputum, they are certain signs of a vomica. It is, however, only important to seek them in cases where other signs are not sufficient to establish a certain diagnosis. Such a case is incipient tuberculosis.

"We usually find signs of more or less extensive chronic

catarrh. The sputa consequently contain a great quantity of pus-cells, and of oval or round epithelium. They have all the external and microscopic characters of concocted sputa. If we now take out of such a sputum, with a forceps, a small portion from one of the clearer parts we see in the white or whitish-yellow mass, and bring it thinly spread out under the microscope, at a magnifying power of 250, we usually find in it fragments of the elastic tissue, particularly if the tuberculosis is still recent. Experience has, in fact, shown that the elastic tissue is more easily found when the disease has not lasted long, and for this there are two reasons.

"In the first place, in tuberculosis of small extent, the catarrh is more limited to the bronchi coming from the tuberculized part; consequently the formation of the sputa must take place there, and the latter therefore contain the object of our search in greater quantity; secondly, at the commencement of the ulcerative process, the tissue, being less completely destroyed, must yield large and more distinct portions to the bronchial secretion than afterwards, when a more violent action in the walls of the cavity breaks down the pulmonary tissue more perfectly before it can be separated. We have, therefore, in the sputum of recent tuberculosis both a less volume to examine, and larger fragments to find—two very great advantages, as the question is precisely to be able to make an early diagnosis."

The author gives, for sake of comparison, representations of fragments of linen, cotton, and silk, which often occur as dust in the sputa, and might puzzle the less practised eye. Of these the silk most closely resembles the elastic filaments, but is easily distinguished by its fibre being thicker than the latter, and by the absence of ramification.

We have translated Hr. von Düben's remarks on this subject nearly *in extenso*, because they contain a clear account of Professor Schroeder van der Kolk's discovery, which we do not recollect to have seen noticed in any English journal.

Gangrene of the lung is thus treated of:—

"Generally speaking, the history of the case, the symptoms, and the characters of the expectoration recognisable by the naked eye and by the smell, are sufficient to establish the presence of pulmonary gangrene. But it is known that the breath of certain individuals is habitually fetid, and that in chronic catarrh and in pneumonia in drunkards an extremely bad smell is developed, so that in such cases there might possibly be a doubt as to the diagnosis. Now in the sputum we have an easily accessible pathognomonic sign. We have as-

sumed the very bad smell of the expectoration to be less essential, and the abnormal colour seen with the naked eye may proceed from blood, transuded hematosine, dirt, tobacco-juice, &c., and so prove deceptive; but if we examine the discoloured spots microscopically, we shall find them to consist of fragments of pulmonary tissue, elastic filaments, portions of mucous membrane, broken-up epithelium, and of a quantity of larger and smaller granules, often completely black, of malformed pus cells and nuclei, granular cells, and amorphous remains of dead pulmonary tissue. The elastic filaments are in this case usually short, seldom ramified, but they occur in such great quantity that their mass sometimes covers the entire field of vision."

In the section on urinary deposits, it is stated that cystin has never been observed in Sweden in the sedimentary form.

The author's interesting and valuable essay presents a most careful and condensed resumè—which we should much like to see in an English dress, if for no other reason, for its conciseness—of the *real* aid which has been yielded by the microscope to practical medicine. Knowing personally the truthful zeal which animates Baron von Düben in all that he undertakes, and his extensive learning, we regret the more that his observations, in their present form, are not available to the profession in these countries.

The Obstetric Memoirs and Contributions of James Y. Simpson, M. D., F. R. S. E., &c. Edited by W. O. Priestley, M. D., Edinburgh, and Horatio R. Storer, M. D., Boston, U. S. Vol. II. Edinburgh: A. and C. Black. 1856. 8vo, pp. 819.

The present volume of Dr. Simpson's obstetric writings contains a variety of essays and contributions on the Pathology of the Puerperal State; the Physiology and Pathology of the Products of Conception; the Pathology of Infancy and Childhood; and on Anæsthetics in Midwifery, Surgery, &c. Rather more than a year has elapsed since the first volume appeared; but as this delay has arisen, the Editors inform us, from a desire on Dr. Simpson's own part to add to the value of some portions of the work by his own more direct superintendence, we cannot feel dissatisfied at it. He has remodelled and rewritten several of these papers, whilst others of them appear for the first time. The subject of anæsthetics occupies more than a third of the entire volume, and, excepting some chapters on local anæsthesia, this large portion of the book is now of

little more than historical value. As Dr. Simpson's exalted reputation and wide-spread fame are intimately associated with this subject, we can readily excuse, however, the republication of all his writings thereon, even though some of them have become, from changes in professional opinion, devoid of interest and importance.

In the first part of this second volume (but the *fourth* part of the work) are six papers on the Pathology of the Puerperal State. The opening one is upon the "Analogy between Puerperal and Surgical Fever;" the subject is ably worked out, and the argument well sustained. By introducing the term "surgical fever," which has the great merit of involving no pathological doctrine, and is sufficiently precise and distinctive as a simple nosological designation, Dr. Simpson has really assisted in the advance of knowledge; and by comparing the points of similarity between this fever and puerperal fever, he has materially helped to divest the latter of much of the mystery which has enveloped it, and has at the same time cleared up and elucidated some of its pathological obscurities. Though not immediately a practical paper, this is nevertheless one of great importance and interest. It is followed by one upon "The Communicability and Propagation of Puerperal Fever," which deserves the special attention of every one at all engaged in the practice of midwifery. The question of the communicability of puerperal fever is really of the highest importance to practitioners, and still more so to society at large: it is very desirable, therefore, that some satisfactory solution were arrived at. Among British accoucheurs the weight of opinion has strongly inclined to the affirmative; but on the Continent and in America the doctrine of the contagiousness of the disease has been utterly rejected, or, at most, has been received with great doubts and limitations, and by a very few individuals. Professor Meigs, in his voluminous treatise upon "Childbed Fevers," devotes a long chapter to this very subject, and evinces therein no want of research or of acquaintance with the writings of authors upon this disease; but so complete and thorough a non-contagionist is he, and so tenaciously does he cling to his own notions, that the most imposing array of facts and instances "do not confirm or even strengthen" the position of those opposed to him on this question. Upon it, as well as on the still more important point—the use of bleeding in puerperal fever—he has shown an obstinacy of opinion that sets all facts and reasoning at defiance, and against which it is vain and useless trying to contend.

In this city puerperal fever has always been regarded as

a disease more or less contagious. The writings of Clarke, Douglas, Collins, Kennedy, Churchill, Hardy, and M'Clintock, in reference to this subject, express very nearly the same opinion. Of late years the tendency of public opinion is to go much further, and to suppose that this disease is contagious to a degree with which we can find no parallel in the history of other diseases. That it is as contagious as small-pox or scarlatina, we must admit, and that, unlike these diseases, it may be communicated or developed by a variety of causes, is also probable—but more than this we cannot assent to.

Dr. Simpson is a contagionist, in the fullest sense of the word, and his paper contains a very lucid and convincing statement of the various ways in which the germ of this dread malady may be *communicated* to a patient.

The next paper in this division contains "Pathological observations on Puerperal Arterial Obstruction and Inflammation." This may be looked upon as quite a new subject of investigation, and Dr. Simpson has explored it with his usual industry and success.

The occurrence of tetanus, as a consequence of injury or derangement of any internal organ, has been strongly denied by many writers of authority. Dr. Simpson has given, however, the fullest contradiction to this doctrine, and has shown that it may at least occur as a *secondary obstetrical* disease, in the same way, as all medical authorities acknowledge it to supervene occasionally as a secondary surgical disease. From his own practice and that of others he has collected no less than 28 cases of tetanus occurring after—(1) lesion of the unimpregnated uterus; (2) abortion; and (3) after parturition at the full time,—altogether forming a most valuable and interesting series of cases. Cases such as these afford additional testimony to the analogy that exists between the condition of the interior of the uterus after abortion or delivery, and that of an external wound, or of a new or raw surface for the first time exposed. Obstetrical tetanus has, in this respect, an exciting cause essentially similar to surgical tetanus. And perhaps the great reason, as our author remarks, why this state of lesion of the interior of the uterus does not more frequently give rise to tetanus, is simply this—that the uterus is itself principally, or indeed almost entirely, supplied by nerves from the sympathetic system; while apparently, as stated by Mr. Curling and other pathologists, tetanus is an affection far more easily excited by lesions of parts supplied with nerves from the cerebro-spinal system, than by lesions of parts supplied with nerves from the sympathetic system. Though not so fatal as ordinary

surgical tetanus, still, this form of the disease is justly to be dreaded, as only *five* recoveries took place out of *twenty-seven* cases cited by Dr. Simpson, the issue of the twenty-eighth case not being known when he penned it.

Of the use of collodion as an application to sore nipples of a particular kind, we can speak, from multiplied experience, in equally strong terms as Dr. Simpson. It is not, however, adapted to every case of fissure or crack in the nipple, but only to those cases in which the fissure is situated at the *base* of the nipple, and runs in a circular direction.

The next part or division (v.) of the volume relates to the "Physiology and Pathology of the Products of Conception." It contains many valuable memoirs, the first of which, on "The Attitude and Positions, natural and preternatural, of the Fœtus in Utero," abounds in original observations. This is a subject that has long perplexed physiologists; but, examined in the light which Dr. Simpson's researches shed upon it, the difficulty disappears. The following propositions, which we give in his own words, seem fully borne out by the facts and reasoning adduced:—

"1. The usual position of the fœtus, with the head lowest, and presenting over the os uteri, is not assumed till about the sixth month of intra-uterine life, and becomes more frequent and more certain from that time onwards to the full term of utero-gestation.

"2. Both the assumption and maintenance of this position are vital, and not physical acts, for they are found to be dependent on the existence and continuance of vitality in the child; concurring with its life, but being lost by its death.

"3. In human physiology, we do not know or recognise any vital power or action, except muscular action, capable of producing motions calculated to alter or regulate the position, either of the whole body or of any of its parts; and further, the motory muscular actions of the fœtus are not spontaneous or voluntary, but reflex or excito-motory in their nature, causation, and effects.

"4. The position of the fœtus, with the head placed over the os uteri, is that position in which the physical shape of the normal and fully developed fœtus is best adapted to the physical shape of the normal and fully developed cavity of the uterus.

"5. This adaptive position of the contained body to the containing cavity is the aggregate result of reflex or excito-motory movements on the part of the fœtus by which it keeps its cutaneous surface withdrawn as far as possible from the causes of irritation that may act upon it as excitants, or that happen to restrain its freedom of position or motion."

Two of the most elaborate articles in this section of the work are those on "Peritonitis in the Fœtus in Utero," and on

"Hermaphrodism." The former appeared in the Edinburgh Medical and Surgical Journal for October, 1838; and the latter, a year later, in Todd's Cyclopedia of Anatomy and Physiology. Both are so well known to the profession, and so highly appreciated, that any comment upon them here would be superfluous.

Immediately succeeding to these papers is one upon "Spontaneous Amputation of the Limbs of the Fœtus in Utero," which first appeared in the pages of the former series of this Journal (November, 1836). The best critique to give upon this paper is the opinion of the highest authority on the subject to which it relates. In the recently published second edition of his "Exposition of the Signs and Symptoms of Pregnancy," Professor Montgomery thus alludes to it;—"In 1836, Dr. Simpson, of Edinburgh, published an excellent paper on this subject, into which he has, with his usual success, collected a vast quantity of curious information, and many most important cases from authors; to which he has added not a few of his own observations, together with several ingenious and highly apposite remarks; he also assents to, and, indeed, strongly confirms, my view, both as to the agent which produces the change, and its consisting of organized lymph, such as is usually elaborated under the influence of inflammatory action, from which it is well known that several varieties of fatal deformities arise; and it is a matter of every-day observation, how completely lymph so effused will be converted into distinct, firm threads, uniting opposite serous surfaces, especially those which move freely on each other, as the pleuræ and the peritoneal coverings of the abdominal viscera."

Dr. Simpson's essay on "Congestion and Inflammation of the Placenta" appears in this part of the work. It has been before the medical public for twenty years,—so needs no comment from us. It is universally admitted to be a most elaborate monograph on a rather obscure subject, and was, if not the first, at least one of the first, essays thereon in the English language. In this and the following Part (VI.), relating to the pathology of infancy and childhood, are some papers with imposing titles, so meagre and so short that they might as well have been omitted: the reader only meets with disappointment in turning to them. As, for example, those on the "Nature of Hydatiginous Degeneration of the Ovum," which consists of merely a few remarks, occupying but half a page, on a single case of the disease; "Cases of Double Cephalætoma;" "Diseased States of the Umbilicus after Birth;" "On the Treatment of Erectile Nævi;" and we might also add to these the articles

entitled "Propositions regarding local Paralysis occurring during Infancy;" and "On the Pathological Connexion between Chorea and Rheumatism." This last but corroborates the facts, and sustains the views, published by Dr. Begbie some years previously. The opinion of both these writers as to the cause of this combination is, that these two apparently different diseases depend upon some identical or analogous poison circulating in the blood. This is a purely hypothetical explanation, but yet it forcibly reminds us that the once derided *humoral pathology* is every day, and in every department of pathology, gaining an ascendancy in the minds of physicians. We rejoice to see this great and fundamental change. The highest oracle declared that "*the blood is the life of the animal*," and to have asserted and proved this great truth contributed more to the imperishable fame of John Hunter than did all his other writings put together. If our knowledge of pathology is destined ever to attain precision or perfection, we doubt not it is by directing our inquiries into the causation of disease, to the changes which the vital fluid undergoes

Dr. Simpson narrates two cases of "the simultaneous Coexistence and Progress of Small-pox and Cow-pox," and in a few remarks appended thereto he states his opinion that where the two eruptions appear on the skin the *same day, or within a few days of each other*, the two affections usually pass through their respective natural courses unaltered in any manner; but that, when the specific eruption of one of these diseases distinctly forestalls the other by as much as four, five, or six days, the earlier disease runs its natural course without change or curtailment, but the latter disease is more or less distinctly modified or abridged, so as to arrive at its acmé at or near the time of the maturation of the first. The experience of Dr. Willan, Dr. Labatt, and others, led them to adopt similar views. In Dr. Labatt's admirable essay upon Vaccination ("An Address to the Medical Practitioners of Ireland on the Subject of Vaccination") this interesting subject will be found discussed at some length.

The last paper in this sixth part of the work is a very original and valuable one. It is on "the external use of Oil in the Prevention and Treatment of Scrofula, Phthisis, &c." The mortality from these diseases in the British islands is enormous. In Great Britain it is estimated by Dr. Simpson at *seventy thousand* annually,—in other words, about *two hundred* lives a day! Any practical suggestion, therefore, on the matter, tending, in however slight a degree, to abate the violence and mortality of such a fatal form of malady,

deserves to be received not only with every indulgence, but with deep gratitude. What first suggested to Dr. Simpson's mind the possibility that the external use of oil might have such an effect, was observing the healthy state and robust appearance of the operators in a large wool factory, who themselves attributed the immunity which they enjoyed from these affections to the free external application of oil to their bodies, which occurred in various parts of the manufacture of woollen fabrics. This induced him to institute an inquiry upon the point, the result of which is favourable to the employment of this practice—external inunction—as a preventive of the diseases in question. It is needless for us to analyze this paper further, as it was published some years ago in the Edinburgh Monthly Journal, and attracted a great deal of attention at the time, and was quoted into all the contemporary medical periodicals. In the concluding part of it the author gives full directions as to the best modes for the external employment of oil. We can strongly recommend this paper to the attention of physicians. The facts on which it is based are indisputable, whilst the practical conclusions to which they lead are of the highest importance. That oily substances can contribute more to the nutrition and renovation of the body than is usually supposed, is a fact well sustained by our experience of cod-liver oil,—a remedy which Dr. Williams, of London, declares to be "more beneficial in the treatment of pulmonary consumption than any agent, medicinal, dietetic, or regiminal." There can be no doubt but that the evidence brought forward by Dr. Simpson strongly encourages a trial of the external application of oil in the diseases alluded to. We, therefore, quote from his paper the more general directions which require to be given by the physician to the patient in reference to the external use of oil. The oil selected ought to be bland and inodorous, like olive or salad oil:—

"1. The oil should be applied moderately warm. Its application is thus rendered far more agreeable to the feelings of the patient; the danger of chills is avoided, and the act of absorption is increased by an elevated temperature. 2. A considerable amount and duration of friction should be used either by the patient or his attendant, or by both, in order to rub in the oil as much as possible, and thus promote the completeness of its absorption. 3. The oil and friction should be applied to the whole cutaneous surface of the trunk and extremities, but especially to those parts of it where the skin is thin and the function of absorption greatest, as the sides, the flexures of the limbs, the insides of the thighs, &c. 4. The average quantity of oil requiring to be used at each inunction is about a large

wine-glassful. 5. In cases in which it is an important object to introduce the oil into the system as freely and rapidly as possible, the inunction of it may be practised twice or oftener in twenty-four hours, especially with children; but the best time for a single daily oil-inunction is immediately before retiring to bed, as the imbibition of any free oil left on the surface may afterwards go on during the night; and, to save the bedclothes, the patient should sleep in a dress of flannel, linen, or other material that stretches beyond the feet. 6. In order to obtain the full absorbing action of the skin, in conjunction with the practice of oil-inunction, occasional warm sponging or bathing of the whole cutaneous surface with tepid water, or with a weak solution of soda in water, should be employed, either immediately before an inunction, or several hours subsequently to one. 7. It is to be remembered that the cutaneous absorption of oil is usually, though not always, comparatively more slow and difficult, and hence the practice itself is so far more disagreeable for two or three weeks after the inunction is first begun, than subsequently; and, consequently, that less oil disappears, and more friction is required in the beginning of the practice than afterwards."

We have now arrived at that portion of the work which relates to artificial anæsthesia. The editors have given all Dr. Simpson's papers on this subject. These papers are numerous and lengthened; nevertheless, in justice to their author, as well as to the history of this whole subject, they could not have been omitted. Their perusal, moreover, discloses to us the various arguments which were brought forward against the practice of anæsthesia on its first introduction; and to the reflecting mind the objections and arguments that have been urged against any great improvement on its first announcement must ever be an interesting and profitable matter of study. We see how dexterously Dr. Simpson refutes many of these arguments by allusions to the early history of vaccination, and by citing many of the objections that were urged against it. His various papers on anæsthesia and anæsthetics are arranged under four heads, viz.: Anæsthesia in Surgery; Anæsthesia in Midwifery; the Nature and Powers of various Anæsthetic Agents; and Local Anæsthesia. The profession is pretty well tired, we believe, of the controversy about the use of chloroform: an amnesty has been agreed on among the various disputants, and the minds of practitioners have settled down to a tolerably certain and definite idea upon this debated question. Every argument that ingenuity could devise, or observation suggest, has been brought forward on both sides, and are familiar to all our readers. From this accumulated mass of evidence each man makes his own deduction, and forms his own estimate of the power of this agent. We shall not weary our

readers by recapitulating any of these arguments here, but would, nevertheless, strongly recommend to them the study of these papers as admirable specimens of close reasoning and extensive research, and of the use of statistics in the solution of medical problems.

The employment of chloroform *locally*, with a view to induce a temporary abrogation of sensibility in the part, early engaged the attention of Dr. Simpson. But although his experiments proved that the vapour of chloroform was capable of inducing partial anæsthesia of any part to which it was applied, he does not appear to have followed up the inquiry further at that time, or to have attached any great practical importance to this use of chloroform. Of late, a great deal of interest has been excited about this subject of local anæthesia, and much attention has been directed to it, which may, in great part, if not entirely, be ascribed to the publication of Dr. Hardy's paper, containing the description of an ingenious little instrument invented by him, and called "the anæsthetic douche," for the express purpose of directing a stream of chloroform vapour to any desired part. That this apparatus fulfils the intention of its inventor has been amply attested: but how far the chloroform douche can annul the sensibility of the part to which it is applied is quite a different question, and one upon which considerable diversity of opinion has been expressed. Upon the unbroken cutaneous surface it exercises, we believe, only a very partial anæsthetic influence; both reason and experience tend to confirm this. But when the vapour is applied to a *mucous* surface, such as the mouth, rectum, or vagina, its effect generally (not invariably) is to annul the sensibility of the part. With the former statement—as to the inefficacy of chloroform vapour to destroy the sensibility of the cutaneous surface—the opinion of Dr. Simpson entirely concurs: and the French surgeons have latterly begun to entertain the same sentiments, although at first many of them were of the opposite way of thinking.

Not satisfied with chloroform as a local anæsthetic, Dr. Simpson has made trial of *carbonic acid gas* for the same purpose, and gives a very interesting and instructive communication upon the effects of this agent when so employed. He remarks:—

"In one respect carbonic acid will be found preferable to chloroform vapour as a topical anæsthetic to the vagina and uterus. Though the application of the vapour of chloroform to the mucous membranes of the mouth, nose, pharynx, and bronchi, in the way in which it is usually inhaled, does not produce any very marked feeling of warmth

in these mucous surfaces: yet its introduction into the genital mucous canals generally creates a disagreeable, and, in some instances, a very painful though temporary feeling of heat and burning. The injection of carbonic acid gas into the vagina is not followed by any such painful sensations."

From our own experience we can corroborate the correctness of both these statements: nay, we have seen the most intolerable pain produced by the injection of chloroform vapour into the vagina; and yet, in the very same case, the presence of carbonic acid gas was not only tolerated, but was found to be productive of ease. The action and effects of this agent deserve to be carefully studied, and to be made the subject of practical clinical investigation. Already we have heard of two hospitals in this city—the Meath, and the Lying-in Hospitals—in which the carbonic acid gas has been used as a topical application, but with what results we are not in a position to state.

The volume before us concludes with some general observations in relation to anæsthesia, and the history of chloroform, and of anæsthetics in ancient times, &c.

We have now carried our readers to the termination of this great work. Our progress through it, we must confess, has been at railroad speed; but, to keep pace with its author, could only thus be achieved. Were we to have stopped and dilated upon any one of the various interesting subjects brought forward by him in these volumes, our space and time would have been wholly occupied at the outset; we should have been obliged to halt before the journey was well begun!

We may here repeat what we remarked in our notice of the former volume of this work, viz., that the position of its author, and the fact of nearly all these papers having before appeared, relieve us from the necessity of expressing any general opinion or estimate of its character and value. One thing, however, we would venture to observe of all the papers it contains, namely, that for perspicuity of style, lucidness of arrangement, and extent of information, they deserve to hold a place among our medical classics: and further, that by developing the immense value of statistics, to aid the solution of all medical problems, they constitute a very important epoch in the history of British medical literature. The composition, at times, of certain passages may not be elegant or chaste, but the meaning of the author is always clear and unmistakable; and this should be the great aim of all writers on philosophical or scientific subjects.

We question whether there is any living physician, with an

equal amount of practice, who has written anything like so much as Dr. Simpson. Indeed, these two robust volumes, to say nothing of his other numerous works, would, in the mere matter of quantity, give him a precedence over most of our writers, obstetrical, medical, and surgical! Our wonder increases when we learn from the author, in his dedication of the second volume, *that he has no great love of lifting his pen, but the very reverse!* This, which, as regards private correspondence, our own experience proves to us is but too true, is certainly a rhetorical flourish with respect to literary composition, as it could never be intended to bear a literal interpretation. It is, perhaps, the only instance wherein our author has deviated from plain matter-of-fact statement.

The Progress of Preventive Medicine and Sanitary Measures. Thruston Speech, delivered on May 10, 1856. By A. W. Barclay, M. D. Cantab. and Edin., &c. Cambridge: Deighton, Bell, and Co. pp. 36.

The speaker prefaces his lecture with a reversion to the days of Dr. Caius, when the knowledge of arts and sciences had scarcely emerged from the darkness of the Middle Ages; when men like the learned Caius were groping their way in the dark to a better understanding of those principles upon which the practice of medicine should be based. He considers it of some import that this address should be delivered in the presence of the masters, fellows, and scholars of this College; it acts as a stimulus to the junior members of the faculty, and, besides, it gives the assurance that, in the high trust committed to them, every new theory is carefully sifted, every new fact studied and appreciated, every new benefit which the science of medicine can bestow, made available for the good of their fellows.

The old proverb—"Prevention is better than cure"—is too seldom acted on or regarded as in any way belonging to the province of practical medicine. As a rule, Dr. Barclay considers professors of medicine have been somewhat to blame for not having given sufficient prominence to this important subject; and that they have been wholly engrossed in watching disease at the bedside, or searching for changes in the inanimate corpse which had been wrought during life; he regrets that at Cambridge University, where the stricter mathematical processes are so fully taught, the inductive process, the legitimate force of argument and inference, are in abeyance.

He considers an imperfect knowledge in this department one of the great reasons why so much confusion exists in our general views of the causation of disease.

Preventive medicine especially applies to zymotic diseases, where poisons are reproduced, as contrasted with ordinary decomposition or disappearance of simple poisons, as opium, arsenic, &c. In the latter cases we seek for an antidote, and for means to negative their injurious effects; in the former cases, preventive medicine endeavours to check in its origin, or stop up the sources from which mischievous influences may be derived.

As yet we have been unable to analyze zymotic poisons. When poisons of this class take effect, we have no means of stopping their reproduction; our efforts must be directed to preventing their spread. With other poisons the case is somewhat different.

In the class of miasmatic diseases, however, the leading type, ague, is an exception to this rule,—here we drain a swamp, or prevent an inundation, and the ague disappears.

The lecturer now adverts to the "colic of Poictou," which was due to the adulteration of sour wines with litharge; "painter's colic;" "dry belly-ache of Devonshire;" all attributable to the presence of lead. He then shows how the poison from lead is chiefly derived from pipes and cisterns, and how it is only necessary that these should be known to be avoided. Next, mention is made of Liebig's eminently successful expedient, viz., keeping the men engaged in leaden trades charged, so to speak, with an excess of sulphuric acid.

Again, while the arts are leading to the discovery of new productions, it is the province of medical science to watch for and negative the development of any disease to which its manufacture may give rise: this he illustrates by an allusion to the magnet, which collects the fine steel dust previously inhaled with the breath of the workman, and giving rise to the disease known as "dry grinders' rot."

In conclusion, the lecturer, after glancing at the subjects of inoculation and vaccination, proceeds to comment on the observance of quarantine and due sanitary precautions: he adverts to the question of water supply, and how its impurity has been directly associated with the spread of cholera; and finally contrasts the destruction attendant on the plague of former days as compared with the cholera in our own.

The entire lecture is an eloquent and instructive composition, affording valuable hints to those engaged in the study of hygienic medicine.

Bidrag till Stenkrossningens Statistik, och till Bestämmandet af denna Metods Praktiska Värde. Ur egen 16-*Årig* (1840 1855) *Erfarenhet.* Af OL. AUGUST SWALIN, M.D. Stockholm: P. A. Norstedt och Söner. 1856.

A Contribution to the Statistics of Lithotrity, and to the Estimation of the practical Value of this Method; from his own experience of sixteen years, during the years 1840 *to* 1855. By OL. AUGUST SWALIN, M. D. 8vo, pp. 112.

DR. SWALIN'S work originated in an answer sent by the author on the part of the surgeons of Sweden, to a circular addressed by M. Civiale, of Paris, to the members of the profession in most countries, requesting materials for the deduction of general statistics of calculous disease. The contribution of Sweden amounted, at the time, to only twenty cases, but during the ten years since elapsed, the number which has come under the author's observation has been increased to sixty-one. This number, Dr. Swalin remarks, is not very great to have occurred during so long a time to a metropolitan practitioner, whence it may be inferred that urinary calculus is not a very common disease in Sweden, or that, at least, it is there much rarer than in southern climates. On the other hand, it sufficiently refutes the statements of those who, "in perfect ignorance of our North, assert that we 'hyperboreans' are wholly free from such a complaint."

The author observes that a sedentary mode of life increases the tendency to the formation of calculus; for among his cases were 21 civil officers; 5 military men, for the most part exempt from service; 8 agriculturists; 5 merchants; 4 clergymen; 3 mechanics; 1 physician; 1 sea captain; 1 orphan-house boy; and 2 (married) women. It will be seen that he here accounts but for 51 cases.

"The 61 patients," the author observes, "among whom, remarkably enough, only two women occur, I shall divide into three classes:—1st. Those who, for some cause or other, have not been operated on. 2ndly. Those who have undergone operation by the knife. 3rdly. Those with whom lithotrity has been adopted.

"To the first class belong 8, of whom 2 were between fifty and sixty years of age; 3 between sixty and seventy; 1 between seventy and eighty, and 2 between eighty and ninety."

The second class includes but 4, namely, 2 women, 1 man, and 1 youth; of these, 1 was between ten and twenty years; 1 between thirty and forty; 1 between forty and fifty; and 1 between fifty and sixty.

The third class contains the remaining 49, all of whom were treated by lithotrity. Of these, 1 was between ten and twenty years; 4 were between forty and fifty; 14 between fifty and sixty; 26 between sixty and seventy; and 4 between seventy and eighty.

The time during which the patients had exhibited symptoms of calculus before the operation varied from six weeks to eight years. The yearly average of cases in which lithotrity was employed was about three.

As to the chemical composition of the calculi, forty-seven consisted of nearly pure uric acid; three of uric acid in combination with oxalate of lime; two of uric acid united with phosphates; one of pure oxalate of lime; eight of phosphate of lime and ammoniaco-magnesian phosphate.

"If we compare the successful with the unsuccessful cases, and observe that no fewer than 7 among 49 have terminated fatally, the result is certainly not very favourable, as it exhibits 1 death in 7, which is little less than the usually received mean mortality after lithotomy, namely, 1 in 5; and, moreover, differs widely from the proportion stated by Civiale, which is 2, or, at most, 4 unsuccessful cases out of 100 operated on; but nothing can be inferred from so small a number of cases as the present. The proportion would, probably, have been much more favourable, if we had to do with a larger number; and besides," adds the author, in a tone which, in our opinion, savours too much of hero-worship, "the result of the operation cannot be expected to prove so brilliant in any one's hands as in Civiale's."

Passing by a number of questions which have formed the subjects of dispute between the advocates and opponents of the operation of lithotrity, as well as the details of the operation already fully described in many other works, the author devotes the greater portion of the latter pages of his useful and instructive essay to "the elucidation, from his own experience, of the consequences, accidents, difficulties, and dangers usually regarded as more or less inseparable from lithotrity, with the objections to the operation which have been based upon the same, in order to depreciate its advantages, which have, perhaps, ocasionally been too highly estimated by one zealous advocate or another."

Dr. Swalin's work is highly practical, and is free from all useless verbiage; and we only regret that the limited extent to which the Swedish language is cultivated in other countries will, unless it should be translated, prevent its being so generally read as it deserves to be.

The Dublin Practice of Midwifery. By Henry Maunsell, M. D., formerly Professor of Midwifery in the Royal College of Surgeons in Ireland. New edition, revised. London: Longmans. 1856, Fcap. 8vo, pp. 272.

Although many valuable papers on obstetric subjects had appeared from the pens of different eminent practitioners, Dr. Maunsell was the first to put forth a volume as the exponent of the Dublin Practice of Midwifery. In it the author showed such a thorough knowledge of his business, and such a power of clear yet condensed description, that we feel regret he had limited himself to the size of a manual. That such a book was wanted, and that it answered the purpose, is proved by the extended sale of several editions. The present edition has had the advantage of the supervision of Dr. Beatty, the present Professor in the Royal College of Surgeons, and one better qualified to afford assistance it would be impossible to find, so that we may be satisfied the practice therein recommended is in accordance with the opinions of the best authorities. Moreover, Dr. Beatty has added a chapter on the use of chloroform, which will be found most valuable. His experience of the value of this agent, when judiciously and carefully administered, is quite in accordance with our own, and the rules he has laid down will be found safe and practical.

Supplement to the Pharmacopœia of the King and Queen's College of Physicians in Ireland, 1850. Dublin: Hodges, Smith, and Co. 1856. pp. 16.

Accidents, in many cases fatal, have at all times been of common occurrence from the substitution, through carelessness, of a poisonous medicine for one not possessed of dangerous properties, or from the internal administration, by mistake, of a remedy intended for external application only. The best method of preventing these accidents has, over and over again, engaged the serious attention of both the profession and the public in

all civilized countries; and more especially within the last few years, when fatal results from such causes would appear to have much increased, have many proposals been made. These consist chiefly in a careful labelling of the bottles used, or in employing vessels made of different coloured glass. Such precautions, however, being found, although ever so carefully carried out, of but little avail, the College of Physicians in Ireland, in accordance with the duties intrusted to them by Royal Charter and Acts of Parliament, turned their attention to this most important subject, and after a prolonged and careful consideration of the entire matter, have, in the form of a Supplement to their last Pharmacopœia, proposed the following Rules to be observed in the compounding and dispensing of medicines in Ireland, the powers of the College being, of course, limited to this part of the United Kingdom:—

"1. That angular bottles or vessels, and none others, be employed in the dispensing of all medicines intended for external use.

"2. That round bottles or vessels, and none others, be employed in the dispensing of all medicines intended for internal use.

"3. That all the articles of the Materia Medica and Preparations included in the list which is hereto appended, be kept in shops and warehouses in angular bottles or vessels; and also that the same shaped bottles and vessels be employed in the case of such medicines and preparations being sold or delivered.

"4. That all the other articles of the Materia Medica and Preparations not included in the list appended be kept in shops or warehouses in round bottles or vessels; and also that the same form of bottle or vessel be employed in the case of their being sold or delivered.

"5. That a similar rule be observed with reference to other medicines, which, though not in the list of this Pharmacopœia, may be kept by apothecaries or druggists, namely, that those possessed of dangerous qualities should be invariably kept and sold or delivered in angular bottles or vessels."

Now, the great beauty of these rules is their simplicity: indeed, so simple is the method proposed, that the great wonder is, so certain a means of protection for both the seller and the purchaser of medicines was not before thought of. The College modestly state in their Preface that "they are aware the Rules cannot be regarded as constituting a complete prevention." It is true that no human foresight could prevent accidents from occurring; but we have no doubt that the plan here proposed, if carefully followed out, will prove a far more effectual safeguard than any hitherto thought of or adopted. We all know that no uniform classification or arrangement of me-

dicines is to be found in shops or warehouses; the tincture of opium bottle is kept alongside the tincture of rhubarb bottle, and the ipecacuanha wine bottle next the opium wine bottle. Labels may become partly defaced, or different coloured glass not clearly distinguishable by artificial light,—to say nothing of colour blindness, which it has been now proved exists more commonly than is supposed,—but the sense of touch will, even in the dark, tell an angular from a round bottle. Again, a sleepy nursetender, in the darkened light of a sick-room, cannot see to read a label; or, thinking that she remembers where she placed the mixture, and where the liniment,—we state no supposititious case, as our readers all know,—unintentionally poisons her patient with a dose of the latter. Now it is scarcely possible that such a mistake could occur if, as the College recommend, "medicines intended for internal use were dispensed in round bottles, and those for external use in angular bottles."

We should hope to see these Rules at once adopted by all sellers and dispensers of medicines of their own accord, not waiting for the pressure of the public from without, who we doubt not, for their own safety, will see that they are carried into effect. They entail no violent revolution in the management of the apothecary's establishment, nor any very great amount of trouble,—different shaped bottles being at present used almost indiscriminately in the sale of medicines. Of the slight expense which may be incurred in making the necessary alterations in the bottles kept in the shops, we say nothing, for we cannot for a moment conceive such an objection being raised when the protection of human life is the question. But we cannot conclude without quoting—for the benefit of those, and there are some, who obstinately resist the adoption of these rules, because, forsooth, they did not originate with themselves—the saying of an apothecary with whom we talked on the matter: that although he did not think they were necessary in his shop, yet he would at once adopt them, for as there was no certainty of guarding against accidents, if one did occur in his establishment, and he had not followed out the directions of the College, he could not expect to avoid being prosecuted for manslaughter, and, if so, scarcely escape being found guilty.

PART III.

MEDICAL MISCELLANY.

On Cadaveric Rigidity, and the Conditions of Muscular Rigidity nearly allied thereto; with special Reference to State Medicine. By Dr. Adolf Kussmaul, Lecturer on Medicine at Heidelberg. Abridged from the original by W. D. Moore, M. B.

The author shows that an individual is to be considered as dead so soon as the medical jurist has satisfactorily convinced himself of the permanent cessation of the heart's action. Among the changes which the body undergoes after death, the so-called cadaveric rigidity is one of the most striking and important. The seat of this phenomenon is, as the simplest experiment will easily prove, in the muscular tissue. The stiffness of the limbs, the immobility of the joints, is, as Nysten first demonstrated, not destroyed when these parts are deprived of their skin; it continues, moreover, even after the lateral ligaments of the elbow or knee-joint have been removed, the synovial capsules opened, and water injected into them. On dividing the corresponding muscles, on the contrary, it instantly disappears. The muscular tissue of the body usually passes through three several stages to its complete disintegration. At first, flaccid and contractible, it subsequently becomes rigid and incapable of contraction, until it finally once more relaxes, of course without regaining its contractility. Of these, it is only the rigid condition which enters into the following considerations.

The rigid muscle possesses a great but imperfect, while before becoming rigid it possessed a slight but perfect, elasticity; it has consequently become less extensible. Its cohesion is diminished. Microscopically the transverse striæ appear more distinctly. At first it contracts weakly, but soon not at all, on mechanical, chemical, or electrical irritation. The parenchymatous fluid no longer contains any free oxygen, the muscle has consumed it and breathes no more; its living metamorphosis has ceased; in a word, *the muscle becoming rigid is a dying, the perfectly rigid is a dead muscle.*

Nysten considered cadaveric rigidity to be "*the last effort of life against the action of the chemical forces, which tend to dissociate the elements of the organization.*" To this hypothesis the Danish phy-

siologist, Sommer, in 1833, objected that it bore the stamp of improbability that a force near its extinction should experience so immense and persistent an increase. At the present day, it may suffice briefly to point out three of the most important and most accurately established distinctions between the rigid and the vitally contracted muscle. The contracted is more, the rigid less, extensible than the muscle at rest. Strong electric currents traverse the contracted muscle, but in the opposite direction to those in the muscle at rest; in the rigid muscle, on the contrary, they are much weakened, and soon entirely disappear. Finally, the metamorphosis of tissue is increased during contraction, but annihilated in rigidity.

To Nysten's vital hypothesis, Sommer opposed his physical theory. Cadaveric rigidity, according to him, is not a living—it is *a physical contraction.* Muscle possesses a vital and a physical contractility, but the latter is not distinctly manifested until the former is extinguished. Like Nysten, Sommer clings to the view that an hypothetical peculiar vital power in the system, to a certain degree, keeps in check, limits, and removes the physical and chemical forces inherent in matter; but, to refute this part of his theory, it is sufficient to show that the essence of cadaveric rigidity does not in general depend upon a contraction of the muscular fibres. Among other more striking proofs of the truth of this may be mentioned the fact, that the limbs become rigid in whatever position is given to them. In flexed limbs, not only the shortened flexors, but also the lengthened extensors, stiffen. The error of considering rigidity as physical contraction arises in great part from confounding contraction with increase of elasticity. The limbs are not immovable, because, as in convulsions, a shortening of the muscular fibres has taken place, but because the latter, by reason of their greater elasticity, oppose an increased resistance to the movements.

The theory mooted in 1842 by E. Brücke, in returning to the opinion of those who attributed the rigidity to *coagulation of the juices*, was received with much favour. But as the simplest anatomical investigation is sufficient to prove that it proceeds neither from congelation of the fat and synovia, nor from the solidification of the fibrine in the capillary vessels, but that it is situated in the muscular tissue, he endeavoured to show that the latter is during life constantly infiltrated with fluid, fibrinous, nutritious material, which afterwards coagulates in death, precisely as the fibrine of the blood does in the vessels. But it was found that the injection into the vessels of fluid capable of preventing the coagulation of the fibrine of the blood did not prevent the occurrence of cadaveric rigidity; hence this theory also appears to be untenable.

The author details some experiments, from the results of which he infers, in opposition to the views of Engel and Stannius, that the death of the nerve is not a necessary preliminary to the occurrence of rigidity in the muscle. They had advanced the opinion that *cadaveric rigidity represents that elasticity of the muscle which it possesses when completely removed from all nervous influence.*

The theory which at present appears to offer the most satisfactory explanation of the occurrence of cadaveric rigidity is that which originated in the investigations of Edward Weber, namely, that the alteration in the elastic condition of the muscle, on which that phenomenon depends, proceeds from chemical changes in the muscular fibrine.

The author next inquires in what point of view cadaveric rigidity may become an object of interest to the medical jurist, and in the examination of the subject adopts the following arrangement:—

1. What value is to be assigned to cadaveric rigidity as a sign of death having taken place.

2. What data does it afford to calculate the time which has elapsed since the death of an individual?

3. What inferences can be drawn from its degree and duration, as to the constitution, disease, and mode of death of the deceased?

4. To what errors may it give rise in the examination of the remains?

In reference to the first question the author observes, that there is not to his knowledge a single well-established case in which cadaveric rigidity was entirely absent. It has indeed been said, that in consequence of certain morbid conditions having existed, it often does not set in; among these are enumerated, by various writers, putrid diseases, rachitis, phthisis, and asphyxia from the inhalation of carbonaceous vapours; but such statements have probably originated in imperfect observations. The author's experiments completely refute the assertion that rigidity does not occur in cases of narcotic poisoning. Dr. Kussmaul has been unable to find any reliable authority for the statement, that it is absent in animals hunted to death, and a similar assertion, as to individuals struck by lightning, is refuted by experiment and observation. Equally unsatisfactory are the accounts which have been published of its *imperfect* occurrence in prematurely expelled fœtuses, while Bertelsen and Ehrmann have witnessed cadaveric rigidity in fœtuses which were extracted, when nearly at the full term, by means of the Cæsarean section. It is to be regretted, adds the author, that we are still quite uninformed as to the period at which the muscular fibre of the embryo is so far developed as to be capable of becoming rigid.

With greater certainty is the fact established that *cadaveric rigidity sometimes does not attack particular parts of the body*, as, for example, the shattered limbs in cases of death after comminuted fractures, or the paralyzed, badly nourished, and water-infiltrated side of an hemiplegic. Stannius found that the limbs which were rendered rigid by tying the arteries in the living animal, but which on restoration of the circulation had once more become movable and regained their irritability, after death did not again stiffen, but passed directly into a state of putrefaction, while the other limbs were perfectly rigid. The author made the same observation in respect to rigidity of the hind-legs produced by the injection of chlo-

roform, when they had again become relaxed during the life of the animal. It hence follows, *that as rigidity may be wanting in particular limbs of the dead body, it may on the other hand be present in particular limbs of the living.* And in this respect the effect of too high or too low a temperature as a means of producing local rigidity resembles that of cutting off the influx of the blood, or of injection with the most widely different chemical agents. Thus, in cases of exposure to the action of frost, the external parts will, *ceteris paribus*, become rigid with the greater ease, and the internal with the greater difficulty, the more the blood has been driven from the periphery towards the centre. It may, therefore, happen that the limbs of a person shall be already stiff and apparently dead, or even in part quite dead, while the heart still beats and the death of the individual has not yet ensued. "I therefore," adds the author, "see no reason why the cases of the restoration of frozen and drunken persons found stiff, recorded in the Transactions of the Royal Humane Society, should be looked upon as so incredible as Sommer thinks them to be."

It is evident from these considerations, as well as from our investigations on the nature of cadaveric rigidity in general, that its value as a sign of death having ensued suffers some prejudice, because, leaving out of the question that the rigidity itself represents only a condition of the apparent death of the muscle:—1. *The constant occurrence of muscular rigidity in dead bodies has not as yet been established for all cases.* 2. *The duration and intensity of the same are frequently so diminished that it easily escapes observation.* 3. *While particular limbs may stiffen in the living body, in the dead they may on the contrary pass directly into putrefaction without becoming rigid.* 4. *Because the possibility of at least partial stiffening of all the limbs and even of the interosseous muscles of the trunk, with persistence of the heart's action and capability of reanimation, is not at present to be established with certainty.*

It now remains to examine whether certain pathological conditions may not simulate cadaveric rigidity, and cause apparent to be mistaken for real death. These will of course be only such as are characterized by a similar immobility of the joints, stiffness of the limbs, and increased tension (apparent hardness) of the muscles. As such we must consider contractions, particularly as they occur in encephalitis and myelitis, tetanus, and catalepsy. The question is, whether we possess simple and certain practical *points d'appui*, which may enable us in doubtful cases to distinguish cadaveric rigidity from these conditions.

Cadaveric rigidity, as it occurs under ordinary circumstances, *is characterized by the great regularity of the course it follows in attacking the several parts of the body.* It begins almost always in the neck and lower jaws. Sommer saw, among two hundred dead bodies, only one exception to this rule. From the neck it passes, not, as the systematic works agree in stating, in *one* direction from above downwards, but in two directions, *that is to say, it at the same time*

advances upwards to the muscles of the face. In its course downwards it usually attacks the muscles of the trunk and of the upper extremities; then, those of the lower. In the particular limbs, too, it proceeds from above downwards. It generally passes off also in the same order.

A second characteristic peculiarity consists in this, that the rigidity almost always sets in, increases, and decreases, imperceptibly and gradually. But the following behaviour is still more important. *When a limb affected with cadaveric rigidity is forcibly bent, the rigidity is removed. If it had been fully developed, it attacks this part no more, but if it was in course of development, it returns, as Sommer showed, but only gradually.*

Contraction is characterized by the excessive tendency to distortion, such as under ordinary circumstances never attends rigidity. *If a limb affected with contraction or tetanus is forcibly brought out of its position, it immediately returns to it with violence.* Contraction, too, is seldom persistent, and tetanic stiffness never continues so uniformly; they are more apt to alternate with slighter convulsions; the tetanic rigidity often remits, and returns suddenly with violence, particularly when the sensitive nerves are irritated. Cataleptic rigidity exhibits greater similarity in reference to its uniformity and duration, but is sufficiently distinguished by that enigmatical waxen flexibility, which, in the best-marked cases, enables the limbs to maintain even such positions as are opposed to the laws of gravity. Notwithstanding these remarkable differences, it may in particular cases be extremely difficult to decide at once whether rigidity or tetanus is present. This will especially occur where cadaveric rigidity sets in suddenly with a convulsion and extension of the limbs, or where actual tetanus passes immediately into cadaveric rigidity. The first occurs on the injection of various chemical agents into the arteries of the limbs of living animals. Here sudden rigidity ensues in the form of a tetanic spasm with extension. Flourens has suffered himself to be deceived, and calls this tetanic rigidity (Comptes Rendus, Jan. 13, 1851). Numerous investigations instituted by the author on this subject place it beyond doubt that we have to do, not with tetanus, but with real muscular rigidity, presenting all the essential characters of cadaveric rigidity. Sommer and Clemens (Deutsche Klinik, 1850, p. 512) saw, after rheumatic tetanus, the spasm of the muscles of the jaw, neck, and back pass immediately into cadaveric rigidity. But in general a stage of muscular relaxation appears to intervene between tetanus and the latter. "In tetanus produced by poisoning with strychnia, with the exception of Engel, who states the immediate passage into cadaveric rigidity as a rule, neither I, nor numerous other observers, so far as I know, could perceive anything of the kind." In poisoning with coal gas, too, rigidity seems capable of being developed directly from spasms with extension. The question will hence suggest itself—Can we from the nature of the rigidity alone determine the moment in which apparent death ends, and real death commences? Here, too, it seems

to me, the behaviour of the limbs in respect to forcible flexion may give decisive information, if general immobility of the joints be present. But where immobility of the lower jaw alone exists, it may under certain circumstances be difficult forcibly to overcome the closing of the jaw, whether it be a phenomenon of death or of disease, in which case the question can be decided only by an examination of other organs, particularly of the heart.

We have consequently obtained, as the fifth point, limiting the value of cadaveric stiffness, the difficulty which may exist, in particular cases, of deciding, solely from the nature of this condition, whether tetanic or cadaveric rigidity be present.

Nevertheless, cadaveric rigidity is, in the great majority of cases, an important and trustworthy sign of death, provided only that due regard be had to the possible sources of error. Its presence is almost always easily ascertained, and its characters are usually sufficiently well marked. But especially is it among the known signs of death, prior to the occurrence of putrefaction,—the most important of all those on which, for want of exercise or through dulness of hearing, a positive opinion as to the presence or absence of the sounds of the heart is to be based.

Lastly, a word as to a much-quoted sign of distinction between cadaveric rigidity and the so-called "rigidity from frost" (Frost-starre); I mean the crepitating sound arising on motion of the parts, from the breaking of the particles of ice. We know that in death from frost the contractile parts become rigid before their water freezes; and when the latter thaws again, the rigidity continues for some time (Brücke). A frozen limb may, accordingly, at the same time present cadaveric rigidity; but a limb may also freeze, the rigidity of which has long since passed away, and in which decomposition has already begun. In both cases the crepitating sound will arise, and its presence proves only that watery particles are frozen, but not that neither cadaveric rigidity nor any of these various conditions of muscular stiffness are present. Another question is, whether this crepitating sound is a certain mark of the occurrence of death by frost.

On the circumstances which influence the duration and degree of cadaveric rigidity.—In order to answer the second and third of the questions stated above—"*What data does cadaveric rigidity supply for calculating the time which has elapsed since death?*" and—"*What inferences can be drawn from its degree and duration as to the constitution, disease, and mode of death of the deceased?*"—we must first make ourselves acquainted with the laws which govern the period of its occurrence and cessation, as well as its intensity.

First of all it is necessary to determine the very shortest and longest limit of the occurrence and cessation of natural cadaveric rigidity in the human subject. On this subject writers differ widely, and fresh investigations are much required. Sommer, who bases his statements on two hundred very careful observations, never saw rigidity set in, excluding the case of the direct passage of tetanic into cadaveric

rigidity, earlier than ten minutes, nor later than seven hours after the cessation of respiration. He, therefore, throws doubt on Nysten's statement that he has observed it not to commence in athletic men who lost blood to exhaustion, until sixteen or eighteen hours after death. In these cases, says Nysten, the rigidity attained an extraordinary intensity, which continued for from thirty-six to forty hours, and then gradually diminished, but did not wholly disappear until six or seven days after death. Probably it is safer not to receive Sommer's limitation in its full extent, but rather to admit the possibility that, in particular cases, where the muscular system is powerful, and death sudden, rigidity may not occur for sixteen or seventeen hours. In dogs, rabbits, and cats, the author never saw it set in later than four hours; most usually it commenced in one or two hours after death.

The shortest period at which cadaveric rigidity may completely pass off is under ten hours after death; it is very difficult to decide what is the latest time at which this may occur. Rigidity of the voluntary muscles may, under certain circumstances, continue fourteen days and longer; but the laws which govern that of the heart and smooth muscles are different. The several parts of the heart die at very different times. The irritability of the left ventricle is extinguished before that of any of the other muscular organs of the body. The author passes in review the several structures of the body, in reference to the duration of irritability in each; and next proceeds to the consideration of the laws known to us in reference to the circumstances which influence the duration and intensity of cadaveric rigidity.

I. Nysten has propounded the law, that *rigidity continues longer in proportion as it has set in later after death*, but the exceptions to this rule are very numerous. Bodies sunk in cold water very soon stiffen, and retain their rigidity long, because this medium is a better conductor of heat, but is less favourable to decomposition than atmospheric air.

II. Another law of Nysten's sets forth that *the intensity and duration of cadaveric rigidity is always in direct proportion to the strength and integrity of the muscles of the body;* from which will follow, as corollaries:—1. *That*, ceteris paribus, *rigidity is weaker, and of shorter duration, in infants and children than in adults;* it also generally sets in earlier in the former than in the latter. This statement has been, by Sommer, extended to include the old, which is not, however, fully borne out by an examination of Albers' Tables. 2. *The more quickly an individual dies, the stronger and more persistent is, under like circumstances, the rigidity, and the later does it usually set in.* 3. *The more the muscular nutrition has been injured by the nature of the preceding illness, the weaker and more transitory is the rigidity, and the earlier does it commence.* Sommer, who completely corroborates the latter two laws, so far as the influence of the duration of the act of dying, and of the nature of the disease, on the intensity and duration of cadaveric rigidity, is concerned, denies that the time of its occur-

rence is, in an equally striking and constant manner, dependent thereon, and he supports his statement with numerous examples.

III. *The more powerfully an agent depresses the vital energy of the muscular fibre, the more quickly does it become rigid.*

A. Above all things, the presence of free oxygen in the muscular fluid is necessary to the muscle for the maintenance of its vital properties. Without this, it cannot breathe, renew itself, or fulfil any physiological function. With the cessation of muscular respiration, with the consumption of the oxygen, and supersaturation with carbonic acid, cadaveric rigidity sets in. The more rapidly, therefore, the oxygen is withdrawn, the more quickly does the muscular fibre, other things being equal, fall into this condition. Hence are explained the following facts:—

1. Those animals (as birds) which, during life, consume most oxygen, fall earliest; those which (as the Amphibia) use least, fall latest into the state of cadaveric rigidity. The frog, in general, does not become rigid until from one to three days after death.

2. Muscle stiffens later in an atmosphere of oxygen, and earlier in one of carbonic acid.

3. As in the living animal the access of oxygen to the muscle takes place through the circulation and the arterial blood, cutting off the latter by tying the afferent vessels, or its exclusion in consequence of the obstruction of the vessels by the formation of a plug, must be followed by cadaveric rigidity of the corresponding groups of muscles. The experiments of Brown-Séquard, and Stannius, have further shown that the rigidity may be again resolved by the restoration of the circulation, provided too long a time shall not have been allowed to elapse. The injection of defibrinated blood restored the mobility of an arm in thirteen hours after execution; but failed to reproduce that of the leg of the corpse when employed after the lapse of twenty-seven hours.

4. The more a muscle has been stretched in action, so much the more quickly does it stiffen; for the more it acts, the greater metamorphosis does it undergo, and it must also take up more oxygen and excrete correspondingly larger quantities of carbonic acid. Hence is explained the problem why animals hunted to death so rapidly become rigid, and if the rigidity is at the same time weak, and does not last long, this depends on Nysten's second law, as, of course, the integrity of the muscle must, under such circumstances, have suffered considerably. Therefore, also, according to Mitscherlich's experiments, the irritability of muscles is extinguished sooner, in proportion as their energy is exhausted by spasms ; and according to Brücke, cadaveric rigidity sets in with remarkable rapidity in poisoning by strychnia; and Leblanc and Faivre have observed the same in tetanus produced by veratria. As already mentioned, Sommer and Clemens saw, in the human subject, tetanic pass immediately into cadaveric rigidity. But whence it proceeds, that, as Brücke states, the rigidity after poisoning by strychnia, notwithstanding its earlier access, continues very long, while we should suppose "that the

more active muscular metamorphosis excited by the tetanus must also occasion an earlier supervention of decomposition," appears to require further explanation.

5. Lastly, Brown-Séquard has shown, that on dividing the sympathetic nerve on one side of the neck, the corresponding half of the face retains its irritability much longer, is later in becoming rigid, and also in entering into putrefaction, than the other side, the sympathetic nerve of which continues uninjured. But if, on the contrary, the sympathetic nerve of one side be galvanized for a long time, its irritability is sooner lost, and rigidity and decomposition set in earlier. Perhaps these circumstances depend on the stasis caused by the division of the nerve, while the galvanization produces a constriction of the vessels and a diminution of the mass of the blood.

B. Muscle requires for the maintenance of its life a certain medium temperature, which, however, varies in cold and warm-blooded animals. If it be exposed for a certain time to a temperature differing in either direction from the normal, it loses its irritability and becomes rigid, as has already long been known. This change takes place more rapidly in proportion as the difference between the warmth of the muscle and that of the surrounding medium is more considerable. Sommer has certainly shown, that rigidity usually sets in in the human subject not only before complete cooling, but that it also may be developed prior to the sinking of the natural warmth, and even while a morbidly elevated temperature exists; the old opinion, according to which the ordinary cadaveric rigidity was thought to be a consequence of cooling, is therefore for ever refuted. It must, however, be understood that the effect of a rapid external abstraction, or of an artificial elevation of the heat of the body in hastening the occurrence of this phenomenon, is not hereby excluded. Sommer's merit consists in having shown that it requires more considerable difference between the temperature of the body and that of the surrounding medium, than had been before the publication of his researches supposed, in order to obtain striking results.

Thus it had been maintained by Nysten that bodies which have remained in bed stiffen much later than those which are exposed to the open air. Sommer has made many experiments on this point without having attained to any decided result. It appeared to him that, other things being equal, bodies became rigid as quickly in an atmosphere of from 59° to 63°·5[a] as in one of from 77° to 81°·5. Finally, he convinced himself of the incorrectness of Güntz' assertion, that the bodies of infants did not stiffen in tepid baths (from 65·75 to 99·5). Richot had previously made the same statement, and Orfila also said that a tepid bath retards the occurrence of rigidity. Sommer placed two infants, which had died asphyxiated, in tepid baths of from 90·5 to 99·5 immediately after birth, and left them there.

[a] The thermometric readings throughout this paper have been reduced from Reaumur's to Fahrenheit's scale.—Trans.

In between three and four hours rigidity was developed, and it attained its height in six hours. In eleven hours the rigidity of the lower jaw had again disappeared. Güntz and Sommer agree, however, in stating that a temperature of from 32° to 59° exercises a greater influence, particularly on the duration and intensity of the rigidity; thus the bodies of strong persons may continue rigid for eight or ten days at a temperature of from 36°·5 to 45°·5, while the last trace of rigidity disappears from them in from four to six days when they are exposed to one of from 65·75° to 86°. On the other hand, according to experiments instituted by Güntz and Sommer on the bodies of children, the rigidity disappears more quickly the higher the temperature is elevated above 99°·5.

It has been supposed that injections with cold water have a considerable effect in hastening the occurrence of rigidity, but the author, to his surprise, did not obtain any striking result of this nature by throwing in either cold or hot water.

C. It is only when it contains a certain amount of water that a muscle can exercise its function. *Drying causes rigidity.* Observers are agreed on this point, that a muscle during the state of rigidity is drier than before and after. Dropsical bodies fall early into rigidity, though this is but slight, and does not last long. Nysten and Sommer observed that a dropsical limb maintains its rigidity more energetically and longer when the œdema is confined to the subcutaneous areolar tissue, than when its muscles also are infiltrated with fluid.

The question, whether an increased dryness is the cause of rigidity has therefore some plausibility, and, in fact, Krause sees in the former one of the most important causal elements of the latter. The author, however, believes Krause's view to be untenable: first, because rigidity sets in indifferently whether the body is surrounded by air or water, and also occurs after the copious injection of water. Secondly, because in Mammalia and frogs he succeeded, notwithstanding that large injections of water had been thrown in, in immediately producing, by the injection of a few drops of chloroform or some drachms of ether, the most intense rigidity in the infiltrated limbs. Lastly, he saw rigidity supervene, after the arteries were tied, in those regions of the limb which were without doubt still abundantly moistened from above.

D. The living muscle is placed in certain mechanical conditions of tension, which cannot be altered beyond a particular degree without danger of injuring its vital properties. Dubois proved that muscles excessively and too long extended, or strongly compressed, are soon injured in their functions, and become rigid. Krause showed that, as has already been mentioned, a muscle can in general attain the state of ordinary cadaveric rigidity, only when it is exposed to a certain degree of tension. Perhaps it is to this that the observations of the absence of rigidity in broken limbs is to be referred.

E. A muscle is, so long as it breathes and lives, constantly sur-

rounded by electric streams, and, except that the direction of the current is changed, indifferently whether it be in a state of rest or of contraction. Essential, however, as the electric fluid appears to be to the life of the muscle, it may become dangerous when it acts in the form of violent discharges, or rapidly traverses the muscle as a strong and especially as an intermittent current.

The old popular belief, that individuals struck dead by lightning do not become rigid, and that they rapidly putrefy, seems not to have obtained at all times and among all people. In Plutarch we find it asserted that such persons are very long without falling into a state of decomposition, while Seneca declares the contrary:—"Fulmine icti inter paucos dies verminant!" The rapid transition into a state of decomposition of bodies killed by lightning has undoubtedly given rise to the statement that they do not stiffen. Experiment, however, shows that animals killed by strong electric shocks become rigid, and the statement just alluded to is refuted by observation of the bodies of men killed by lightning. The experiments of Brown-Séquard prove that an electric current has the effect of hastening the occurrence both of rigidity and of putrefaction; and it has been found that an intermittent stream induces stiffness more rapidly than one which is continuous.

F. Numerous chemical agents possess the power of instantaneously producing rigidity of the muscular structure, or of greatly hastening the supervention of this state. Of these, some, as ether and chloroform, are capable, when injected into the arteries, of producing stiffness only before natural cadaveric rigidity has set in, but are incapable of reproducing it when it has passed off; while others, as water of caustic potash, acetic acid, and dilute hydrochloric acid, excite a certain degree of rigidity in muscle which has again become relaxed and is in process of putrefaction. The agents which the author found in the smallest quantity to occasion the greatest degree of rigidity, were oil of mustard and chloroform; and he also observed that the rigidity produced by chemical agents in the limbs of the bodies of animals lasted in general much longer than that which took place spontaneously.

There is no doubt that cadaveric rigidity furnishes data for calculating the time which has elapsed since the decease of an individual, though our knowledge is insufficient to afford more than approximate results. The author sketches some imaginary cases in illustration of the extent to which inferences may be drawn as to this point, from the circumstances in which bodies are found, and of the mode of reasoning from the premises so supplied.

Cadaveric rigidity may be useful in some cases in determining the priority of death.—This part of the subject is exemplified in the same manner. Dr. Kussmaul considers it to be very problematical, whether the period at which rigidity supervenes and goes off, or its intensity, shall ever justify conclusions as to the previous illness and mode of death,—as for example, poisoning with mushrooms, or with strychnia, the effects of lightning, &c.

The author lastly inquires to what errors cadaveric rigidity may give rise in the examination of remains. It is to be remembered that the limbs usually stiffen in the position they have last received. That the corpse of a person shot should be found with the fingers closely grasping a pistol, is no proof of suicide; for if this position be given them in the stage of relaxation, they will in that of rigidity embrace the object so closely, that it will be difficult to disengage the latter. The transient expression of the countenance produced by passion and emotion, anger, pain, terror, &c., and essentially due to contraction of the facial muscles, must disappear after death, because these immediately relax, and some of them subsequently contract when rigidity comes on. It is, therefore, quite inadmissable to attempt to infer the final state of the mind during life from the physiognomy of the corpse. No conclusion can be drawn from the width of the pupils in death, as to the diameter they presented in the latest period of life. Rigidity of the heart exposes us to the danger of looking upon this organ as diminished, its muscle as condensed, and the cavity of the left ventricle as narrower than in the normal state. Probably the entire theory of concentric hypertrophy of the heart depends upon an error, rigidity of the heart having been looked upon as a pathological condition. On the other hand, an inexperienced observer has often allowed himself to be deceived by the existence of relaxation of the heart into the diagnosis of a passive hypertrophy. It is evident that paralysis of the heart is not to be inferred from the post-mortem appearances, especially from flaccidity of the muscular structure. In order to distinguish the hardness of an hypertrophied from the apparent firmness of a rigid heart, it will be advisable to cut out a portion of it, and to try how far the stiffness can be lessened or removed by pulling and bending. The ruffled condition, frequently exhibited by the surface of the spleen, is the consequence of constriction of its vessels, and perhaps, also, of shortening of its contractible fibres. Whether the contracted state of the stomach, the wrinkled and "glandulo"-varicose condition of its mucous membrane, so often met with in early dissections, depends on rigidity of the muscular coat, cannot be accurately decided. We should, however, beware of considering them as pathological phenomena.

Lastly, the greater ease with which a rigid muscle may be torn, should be kept in view. The stronger the individual was, and the more intense the rigidity is, the more likely are the muscles to be lacerated if roughly handled. The so-called spontaneous rupture of the recti muscles of the abdomen is attributable to another circumstance, namely, to increased fragility in consequence of inflammation of the muscles.—*Vierteljahrschrift für die praktische Heilkunde*, 1856. Band 2, p. 67.

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Cases illustrative of the beneficially Antispasmodic and Anæsthetic Effects of Chloroform. By Prof. P. H. Malmsten of Stockholm.

Case I.—A girl, aged nearly seven years, herself a healthy and sprightly child, but whose brothers and sisters in general showed a tendency to sanguineous congestion of the head and convulsions (one sister had died of acute hydrocephalus), complained on the 22nd of last March, having the day before probably taken cold, of headach fixed in the left temple; she was depressed, but was free from fever; the bowels had not acted during the preceding twenty-four hours. Castor oil was given at noon, but had no effect; still, as the child was more lively towards evening, her parents did not think it necessary to take any further steps. During the night her sleep was disturbed, and she complained of headach. At 10 o'clock of the forenoon of the 23rd a violent attack of convulsions set in. Physician-in-ordinary (Lifmedicus) Ahlberg, who shortly after accidentally saw her, found her suffering from incessant convulsions, with violent congestion of the head; the eyes were distorted, the conjunctiva, especially of the left eye, was injected, the pupils were contracted. A hot pediluvium was immediately ordered, together with a stimulating enema, the application of ice to the head and five leeches behind the ears. Dr. Ahlberg also prescribed a powder of calomel and jalap. On my arrival at a little before 12 o'clock I found the child lying in a state of constant insensibility, with severe convulsions, distorted eyes, and much heat of head. The powder was immediately administered, the hot pediluvium was again employed, but as no improvement was apparent, the little patient was placed in a warm full bath, while the bladder of ice was kept on the head. It was not until $1\frac{1}{2}$ o'clock, after she had been in the bath for more than a quarter of an hour, and consequently when the convulsions had continued for three hours and a half, that the latter ceased; she was then put to bed. Notwithstanding that the leeches bled considerably, the head was hot and the countenance flushed. The eyes were closed; the child was insensible; the skin was dry and hot; the pulse was quick. The application of ice to the head was continued; a purgative and stimulating lavement was administered, and three table-spoonfuls of compound infusion of senna were given internally. On my return at $4\frac{1}{2}$ o'clock, the child, who had meantime been quiet, once more knew those about her and spoke some words to her parents, when suddenly an attack of violent convulsions again set in. The hot pediluvium was repeated, and musk was given internally. After the foot-bath, sinapisms were applied to the calves of the legs and to the epigastrium; but as no amelioration took place, the full warm bath was again had recourse to, the child being kept in it for twenty minutes. The convulsions, nevertheless, continued; the little patient was replaced in bed; her complexion became more and more livid; the convulsive spasms, which occupied almost the whole muscular system, began to predominate in the extremities of one side; the pulse was weak, and

not particularly frequent; bloody foam came from the mouth. Fearing that collapse and death might quickly supervene if the convulsions were not arrested, I determined to let the child inhale chloroform, which I had brought with me. Twenty drops of chloroform were put upon a handkerchief, which was held to the child's nose, at a distance of an inch and a half, with the rapid and surprising effect that the extremely violent convulsions were immediately diminished, and in less than a minute and a half had entirely ceased. When occasionally they appeared about to return, they were checked by causing the child again to inhale chloroform for a very short time. The patient now grew pale, and lay insensible, but calm and quiet; the pulse was steady, about 100. A copious alvine evacution soon took place. The application of ice was continued, and two table-spoonfuls of compound infusion of senna were again given. Instead of administering mercury internally, I preferred, in order to bring the little patient as quickly as possible under the influence of that remedy, to employ inunctions of mercurial ointment in the groins, the inside of the thighs, and the axillæ; accordingly, half an ounce was rubbed in in the evening. A moist warm poultice was applied over the stomach. The ensuing night was tolerably calm, except that the child several times ground her teeth. On the morning of the 24th she looked up and was tolerably collected, but did not answer when spoken to; her face was hot and red, notwithstanding that the bladders of ice were kept constantly applied. Two drachms of mercurial ointment were again rubbed in, and as a copious action of the bowels had taken place no medicine was given internally; she had milk and water for drink. In the evening of the same day the child began to speak and to exhibit full consciousness. Slight mercurial fetor of the breath was now perceptible. The little patient complained of constant pain in the left temple. Autenrieth's [tartar emetic] ointment was rubbed into the neck morning and evening, and every second day a gentle dose of compound infusion of senna was given to keep up an action of the bowels; no other internal medicine was administered. It was not until the seventh day of the child's illness—when her condition was gradually improving, while a very gentle mercurial action continued, and the ointment had brought out an eruption on the neck—that an attempt was made to leave off the application of ice to the head; but the face soon began to get red, the head became hot, and the child got restless, on which account it was continued for two days longer, and was not removed until the eighth day of the illness. A little nourishment was gradually and carefully given. On the 2nd of April the child was entirely free from fever; on the 3rd she could, although extremely weak and debilitated, play a little with her dolls. The improvement continued uninterruptedly, and at the end of fourteen days more the little patient was quite recovered.

The above case speaks so fully for itself, that any observations are really unnecessary. That the child would most probably have died, if we had not succeeded in quieting the convulsions by means of

the chloroform inhalations, I am convinced, as I had six years before seen a nearly similar case, in which the convulsions did not cease until the child fell into deep coma, which was soon followed by death. We must consider ourselves truly fortunate to have gained so efficacious a remedy for such desperate cases; for the first indication must still always be, to arrest the convulsions. Further, I feel myself called on to recommend that when the indications exist in infantile practice for the use of mercury as an alterative, the ointment should be employed externally, instead of giving the medicine internally, for the digestive organs are then not loaded, diarrhœa is avoided, and the child's strength is incomparably more husbanded, than when the remedy is given internally.

CASE II.—On the 9th of April I was called to a middle-aged man of strong constitution, who had in general enjoyed good health, but had, after some days' general indisposition, been attacked during the preceding night with violent headach, high fever, and tenderness over the whole body. The night had been sleepless. On my arrival at 10 o'clock in the forenoon, the patient complained incessantly of severe headach, great uneasiness and pain in every part of the body; the head was hot; the face was flushed; the eyes were intolerant of light; the pulse was hard, full, and frequent; and the skin was hot and dry. From the symptoms then present, and from the fact of the patient having been ill for some days, I apprehended the commencement of a nervous fever. Ten grains of calomel were given in the morning, and ice was applied to the head. In the evening of the same day, after some alvine evacuations had taken place, he was somewhat more tranquil, but the headach was violent, the fever and uneasiness continued. The application of ice was continued, and a solution of phosphoric acid was given internally. On the 10th the patient had a more tolerable night, and the headach and fever were diminished. The same treatment was continued. On the 11th the patient was somewhat better; the headach and fever were inconsiderable, but there was great debility. On the forenoon of the 12th he complained of weight in the head, and felt particularly weak and depressed; there was not much fever. At $2\frac{1}{2}$ o'clock in the day he was attacked with severe headach, which gradually increased, and when I visited him at about $4\frac{1}{2}$ o'clock he complained of an extremely distressing pain in the right ear, accompanied by sensations of cutting and rending, extending inwards over the right side of the head, and over the left temple. The head was hot, the countenance was flushed, and the temporal arteries were beating strongly. Two bladders of ice were now directed to be applied to the head, ten leeches to be put behind the left ear, and four table-spoonfuls of compound infusion of senna to be given internally. I returned at 7 o'clock; the pain in the ear was now still more distressing, and the sufferer, who was in general extremely patient, complained very much of the tearing sensation in the ear; the pulse was rapid, small, and hard. On inspection, nothing wrong could be discovered in the external parts of the ear. I di-

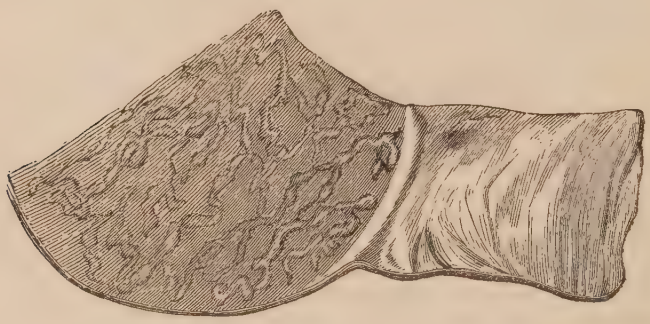
rected morphia dissolved in warm oil to be dropped into the ear, and as the leeches had recently begun to bleed, I hoped some relief from his sufferings should have been obtained. On my return at 9½ o'clock in the evening I found the patient quite distracted with the pain in the ear, which produced agitation throughout the whole body, and sometimes a tendency to vomit. The leeches had drawn copiously; the head was cooler; the bowels had acted, but no relief had been obtained; on the contrary, the pain had increased. The patient declared that if he did not quickly get some ease, he should probably become deranged. In this desperate state of things I determined to try the effect of dropping chloroform into the ear. About twelve drops were introduced at once; the man immediately became almost delirious in consequence of the violence of the pains in the ear, but within a minute after, the latter abated, and in five minutes perfect quiet and freedom from pain ensued, only a throbbing and heat remained in the ear. A warm poultice was applied over it; the ice was continued to the head, and blue pill was given at intervals during the night. On the 13th the patient, who had towards morning some hours' rest, was very weak; the fever was inconsiderable; some feeling of weight in the head alone remained; the pain in the ear had ceased. The blue pill was continued during the day. The night of the 14th the patient slept quietly, and in the morning was free from fever, but weak. At 2½ o'clock I got a message that the pain had returned in the right ear as severely as on the 12th. I sent directions to have the ice applied immediately, and on my arrival at 4 o'clock I found the patient complaining of violent pain and cutting sensations in the ear, precisely as he had done two days previously. I now without delay dropped the chloroform into the ear, with the same result as before, namely, at first, and immediately after it was dropped in, intolerable pain, which drove the patient for an instant quite distracted; but shortly after, perfect quiet and removal of all pain. No chill or shivering had preceded either attack, nor had any perspiration followed it; but the disease was evidently a masked intermittent fever, which might well be called malignant (perniciosa). On the 15th, accordingly, twenty grains of quina were administered. The patient, who had subsequently no return of the attacks, recovered, however, but slowly, and had for long a feeling of weight in the head, and, as it were, of a band over the forehead: in fact, three weeks elapsed before he could consider himself at all restored to health.—*Hygiea*, May, 1855, p. 372.

Two Cases of unusual Abnormities in the Valve of the Pylorus. By Professor A. Retzius.

Examining last year at autopsies a great number of stomachs, with a view to study the form of this organ, I met two, as they appeared to me, remarkable varieties of the valve of the pylorus, which,

so far as I am aware, have not heretofore attracted the attention of pathologists. In both cases I am, however, ignorant of the condition of the subject during life.

1. *Obliteration of the Valve of the Pylorus.*—In a stomach which was rather small in circumference, and was taken from a middle-aged woman, with respect to whom I have no further information, the valve of the pylorus was found to have nearly disappeared. The pylorus itself stood open; of the valve only a low circular border, scarcely a line in height, was found; the muscular rings in it were proportionally very slight. I append a figure of the pyloric portion of this stomach, representing the pylorus and a part of the duodenum, half the natural size. The valve is formed only of a low border.



The preparation was taken shortly after death, before the cadaveric rigidity had passed away. I consider that this pyloric apparatus cannot have been in a condition completely to close the stomach. If this was the case, what disturbance must not such a circumstance have produced in the process of digestion in the stomach? It is evident that when the pylorus is only imperfectly shut, the food introduced into the stomach must, in many instances, be less exposed to the action of the gastric juice than when the organ is entirely closed during the first part of the process of digestion. This must especially be the case when the food is thin.

I have no reason to believe that this condition was congenital. What produced it? I know not, and I do not venture in this case even to offer a conjecture. The coats of the stomach were, so far as I could see, sound, without any trace of ulcers, scars, or other anomalies.

2. *Unnatural Prolongation of the Pyloric Valve.*—This stomach was likewise that of a female, older, however, than the preceding subject; neither was I able to procure any information as to her state during life. The organ was rather small. The saccus cæcus, and also the antrum of the pylorus, were but slightly developed;

the entire stomach was long and slender. The valve of the pylorus itself projected as a somewhat conical beak into the antrum duodeni[a]. The length of the valve from the base was nearly an inch. Only immediately adjoining the base did it contain a ring of muscular fibres; otherwise it consisted of a fold of mucous membrane, containing submucous connective tissue. The surface of the mucous membrane exhibited nothing abnormal.

This was the first time I had observed such a case; nor can I recollect having seen a description of anything similar. It appears to me to be evident that neither could this pyloric valve properly discharge its function. Nor do I believe that in this case, any more than in the preceding, the pylorus could be perfectly closed during the primary digestion of the food. Probably this had a disturbing influence on the first part of the duodenum, which is free from valvulæ (the antrum duodeni). I imagine that if this valve, in a case of severe vomiting, should have come to be turned in upon the stomach, it must have produced a constant irritation of the sensitive antrum pylori. Equally little can I, in this instance, form any idea of the origin of the affection; I believe, however, that, as in the preceding case, it was not congenital, but acquired.

We have hitherto in general directed quite too little attention to both the orifices of the stomach: the cardia, and pylorus. As concerns the cardia, it may as well be looked upon as belonging to the œsophagus as to the stomach. The closing of the upper orifice, too, is most closely connected with that of the œsophagus. All the circular muscular layers of the gullet act as a sphincter throughout the whole course of the œsophagus, down to the cardia, and may, therefore, be considered as a broad sphincter of the upper orifice. Without some such considerable and powerful closing apparatus, the slightest pressure on a stomach filled with fluid substance would cause the latter to rise into the throat and mouth, and perhaps even into the nose. It is therefore evident that this circular muscular apparatus in the œsophagus is constantly in a contracted condition, like the sphincters

[a] A name given by the author to the first part of the duodenum, which wants the valvulæ conniventes of Kerkringius.

of the anus, and does not yield until it is distended by a *vis a tergo*[a]. In the same manner it appears to me that a sound pylorus ought to be habitually closed, and to be opened only occasionally, when anything is to be expelled into the duodenum and the rest of the intestinal canal. This closing must chiefly depend on the muscular ring, which has been called the sphincter of the pylorus; but it would seem that here, with the sphincter, a valve is also necessary, as if to fill the opening during contraction, thus sparing the sphincter the necessity of wholly closing its ring. Moreover, this valve is intended to hinder regurgitation from the duodenum into the stomach when the pylorus is opened. Accordingly, when this organ is so deficient as it was in the first case, such a regurgitation from the duodenum of bile, &c., must have taken place just as the pultaceous contents of the stomach may be supposed to have run down prematurely into the duodenum, before they were completely acted on by the gastric juice. I imagine, in fact, that when the valve is so obliterated as was the case in this instance, it must be necessary that the muscular ring itself should almost fully contract in order to close the pylorus. But the pyloric portion of the stomach is usually much thicker than the remaining part of the walls of that organ, and often possesses a considerable degree of rigidity. This thickness and rigidity of the pylorus must in no small degree impede the perfect closing of the sphincter, in the completion of which, therefore, the valve with its mass assists by filling up the deficiency.

The pylorus must necessarily be provided with a peculiar, so to speak, sensitive excitability, in virtue of which it obeys the summons to open itself, when portions of the contents of the stomach are to pass through. We must, therefore, suppose that in a sound stomach, this nervous excitability must be in well regulated order, always, as it were, on the watch to receive impressions, and to communicate these to the nervous centres, whence the impulses proceed to the muscular parts, effecting the opening of this portal. Impairment of this excitability, or an interruption of its conduction, must in many cases destroy the function of the pylorus. This suggests the idea that the motor functions of the pylorus may be imperfect or disturbed. This may depend on defects in the nervous centres, in the conducting media, or in the muscular ring itself. All these circumstances will require to be more closely studied, to enable us to recognise and advantageously deal with them. This

[a] John Müller, in his Physiology, has directed particular attention to the peculiarity of a sphincter muscle, that, unlike most other muscles, it is always contracted as if excited thereto through nervous influence, and he compares this property to a constant rigid cramp. What we usually denominate cramp in the œsophagus is a phenomenon of quite a different nature from what is elsewhere called cramp. That is to say, it must consist of an irregular simultaneous action of the longitudinal fibres and the various rings of circular fibres, which is rather to be compared to a partial and imperfect paralysis; in other words, to restricted action of the same muscular apparatus, the result of morbid deposits about it, or of mechanical obstruction in the neighbourhood of the œsophagus, in or near the posterior mediastinum.

appears difficult, but I believe that it is not impossible. We have many reasons to suppose that the stomach has a very regular action, that it is capable, by means of its ingenious muscular apparatus, of dividing itself into several compartments, and of disposing certain portions in certain of these cells, &c. This must especially be the case with the permanent division I have so often spoken of, and so constantly occurring, to which the name of the antrum pylori has been given, on which undoubtedly all excitants of vomiting, and specially emetic remedies, must exercise a particular influence.—*Hygiea*, October, 1854, p. 588.

On the Effect of Sleep on the Excretions. By BECKER.

THE author's experiments showed, that during sleep the quantity of the urine, of the water, of the solid matters, of the urea, of the volatile salts, of the chloride of sodium, of the extractive matter, and of the earthy phosphates, was increased. On the other hand, the quantity of the fixed salts, and of the sulphuric acid in combination with potash, remained unaltered, while the urates and alkaline phosphates were considerably diminished. The loss of weight of the body, which was always much greater during sleep, was attributed to the increased excretion of urine. The insensible perspiration would appear, from the inconsiderable variations which the different experiments exhibited, not to be materially affected by sleep or waking; still, if it be true that during sleep the quantity of carbonic acid exhaled is diminished, the insensible perspiration must undergo a corresponding increase. The author explains the established diminution of phosphoric acid as follows:—This acid is found in the muscular fluid combined with potash, and in the brain as oleo-phosphoric acid. But its amount in the urine does not at all correspond, as one should expect, to the urea abundantly separated through the rapid metamorphosis of the muscular substance, but appears, on the contrary, often diminished in proportion to it (the urea); consequently we cannot connect the diminished excretion of phosphoric acid with the metamorphosis of the muscles, or muscular fluid, but only with the brain. But of the brain itself, only that part which carries on the psychical function can, properly speaking, rest during sleep, as in the vegetative functions of the body scarcely any cessation is demonstrable. The author, therefore, believes that under otherwise equal conditions during sleep the metamorphosis of the part of the brain (and perhaps also of the spinal marrow), which performs the psychical functions, is diminished, while that of the other organs, so far as their products of metamorphosis leave the body as constituents of the urine, is increased, and then the renovation, especially that of the brain, is effected.—*Vierteljahrschrift für die praktische Heilkunde*, Band 50, 1856, *Analekten*, p. 5.

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